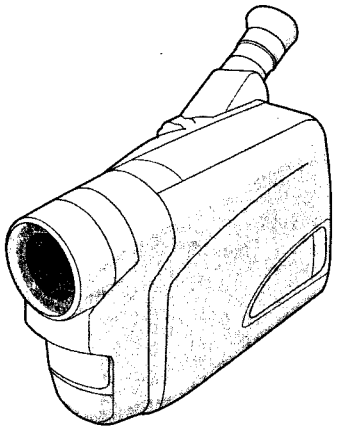
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-SX850U/SX851U/SX950U



S-VHS C
Super VHS
Super VHS ET

SPECIFICATIONS *(The specifications shown partain specifically to the model GR-SX950U)*

Camcorder

General

Format	: VHS NTSC standard
Power source	: DC 6.0 V ⎓
Power consumption	
Light off	: 3.6 W
Light on	: 6.6 W
Signal system	: NTSC-type
Video recording system	
Luminance	: FM recording
Color	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: S-VHS C / VHS C cassette
Tape speed	
SP	: 33.35 mm/sec. (1-5/16 ips)
EP	: 11.12 mm/sec. (7/16 ips)
Recording time (max.)	
SP	: 40 minutes
EP	: 120 minutes (with TC-40)
Operating temperature	: 0°C to 40°C (32°F to 104°F)
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to 50°C (–4°F to 122°F)
Weight	: Approx. 730 g (1.6 lbs)
Dimensions	: 198 (W) x 119 (H) x 91 (D) mm (7-13/16" x 4-11/16" x 3-5/8") (with the viewfinder fully tilted downward)
Pickup	: 1/4" format CCD
Lens	: F1.6, f = 3.9 to 62.4 mm, 16:1 power zoom lens with auto iris and macro control, filter diameter 40.5 mm
Viewfinder	: Electronic viewfinder with 0.55" color LCD
White balance adjustment	: Auto/Manual adjustment

Connectors

JLIP	: ø3.5 mm, 4-pole, mini-head jack (compatible with RC-5325 plug)
Video	: 1 Vp-p, 75 Ω unbalanced, analog output (via Video output connector)
Audio	: –8 dBs, 1 kΩ analog output (via Audio output connector)
S-Video	: Y : 1 Vp-p, 75 Ω, analog output C : 0.29 Vp-p, 75 Ω, analog output

AC Power Adapter/Charger AA-V16U

Power requirement	
U.S.A. and Canada	: AC 120 V~, 60 Hz
Other countries	: AC 110 V to 240 V~, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 125 (W) x 42 (H) x 68 (D) mm (4-15/16" x 1-11/16" x 2-11/16")
Weight	: Approx. 270 g (0.6 lbs)

Cassette Adapter C-P7U

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm (7-7/16" x 1" x 4-1/8")
Weight	: Approx. 240 g (0.53 lbs)
Accessory	: "AA (R6)"-size battery x 1

Optional Accessories

- **Battery Packs BN-V12U, BN-V20U, BN-V856U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Audio/Video Cable**
- **S-Video Cable QAM0004-004**
- **Car Battery Cord AP-V7U**
- **Compact S-VHS (S-VHS C) Cassettes ST-C-40/30/20**
- **Compact VHS (VHS C) Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**

Some accessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated. E & O.E. Design and specifications subject to change without notice.

This service manual is made from all recycled paper.
COPYRIGHT © 1999 VICTOR COMPANY OF JAPAN, LTD.

No. 86531
December 1999

TABLE OF CONTENTS

Section	Title	Page
	Important Safety Precautions	
	INSTRUCTIONS	
1.	**DISASSEMBLY**	
1.1	SERVICE CAUTIONS	1-1
1.1.1	Precautions	1-1
1.1.2	How to read the disassembly and assembly	1-1
1.1.3	Connection of the wires	1-1
1.2	TOOLS REQUIRED FOR ADJUSTMENTS	1-2
1.3	DISASSEMBLY/ASSEMBLY OF CABINET PARTS	1-3
1.3.1	Disassembly flow chart	1-3
1.3.2	Disassembly method	1-3
1.4	DISASSEMBLY/ASSEMBLY CAMERA SECTION AND DECK SECTION	1-7
1.4.1	Flowchart of disassembly	1-7
1.4.2	Disassembly method	1-7
1.5	REPLACEMENT OF CCD IMAGE SENSOR	1-9
1.5.1	Removal of CCD image sensor	1-9
1.5.2	Installation of new CCD image sensor	1-9
1.6	REPLACEMENT OF CCD BOARD ASSY	1-10
1.7	TAKE OUT CASSETTE TAPE	1-10
1.8	EXTENSION CABLE CONNECTION	1-11
1.9	EMERGENCY DISPLAY	1-12
1.10	DEMONSTRATION MODE	1-12
2.	**MECHANISM ADJUSTMENT**	
2.1	Required adjustment tools	2-1
3.	**ELECTRICAL ADJUSTMENT**	
3.1	ELECTRICAL ADJUSTMENT	3-1
3.1.1	PREPARATION	3-1
3.2	ELECTRONIC VIEWFINDER (C VF) ADJUSTMENT	3-3
3.2.1	H. POS	3-3
4.	**CHARTS AND DIAGRAMS**	
	NOTES OF SCHEMATIC DIAGRAM	4-1
	CIRCUIT BOARD NOTES	4-2
4.1	BOARD INTERCONNECTIONS	4-3
4.2	CPU SCHEMATIC DIAGRAM	4-5
4.3	JACK AND CTL AMP SCHEMATIC DIAGRAMS	4-7
4.4	MECHA MDA SCHEMATIC DIAGRAM	4-9
4.5	VTR DSP SCHEMATIC DIAGRAM	4-11
4.6	PRE/REC SCHEMATIC DIAGRAM	4-13
4.7	VTR ASP SCHEMATIC DIAGRAM	4-15
4.8	CAMERA DSP SCHEMATIC DIAGRAM	4-17
4.9	IRIS & AF/ZOOM SCHEMATIC DIAGRAM	4-19
4.10	REGULATOR SCHEMATIC DIAGRAM	4-21
4.11	VF/MTIF AND CCD SCHEMATIC DIAGRAMS	4-23
4.12	ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM	4-25
4.13	OPERATION UNIT, ZOOM UNIT AND SENSOR SCHEMATIC DIAGRAMS	4-27
4.14	MAIN CIRCUIT BOARD	4-29
4.15	CCD CIRCUIT BOARD	4-35
4.16	ELECTRONIC VIEWFINDER CIRCUIT BOARD	4-37
4.17	POWER SYSTEM BLOCK DIAGRAM	4-39
4.18	CPU/MDA BLOCK DIAGRAM	4-41
4.19	CAMERA BLOCK DIAGRAM	4-43
4.20	Y/C BLOCK DIAGRAM	4-47
4.21	WAVEFORMS	4-51
4.22	VOLTAGE CHARTS	4-52
5.	**PARTS LIST**	
5.1	PACKING ASSEMBLY <M1>	5-1
5.2	FINAL ASSEMBLY <M2>	5-3
5.3	MECHANISM ASSEMBLY <M3>	5-6
5.4	ELECTRONIC VIEWFINDER ASSEMBLY <M4>	5-8
5.5	ELECTRICAL PARTS LIST	5-9
	MAIN BOARD ASSEMBLY <01>	5-9
	CCD BOARD ASSEMBLY <02>	5-15
	BL BOARD ASSEMBLY <06>	5-15
	VF BOARD ASSEMBLY <10>	5-15

The following table lists the differing points between Models GR-SX850U/UC, GR-SX851U/UC and GR-SX950U in this series.

	GR-SX850U/UC	GR-SX851U/UC	GR-SX950U
DC LIGHT	NOT USED	USED	USED
REMOTE CONTROL UNIT	OPTION	OPTION	PROVIDE

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

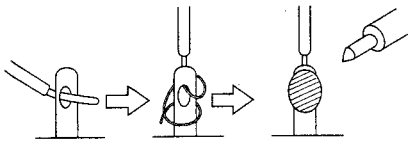


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

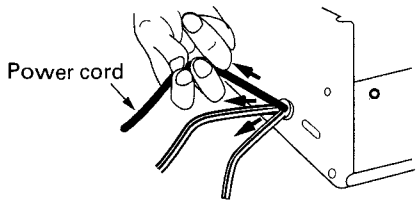


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

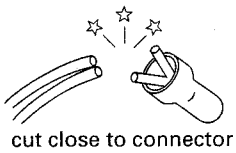


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

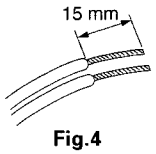


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

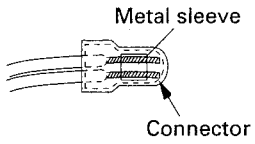


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

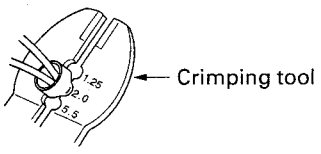


Fig.6

(5) Check the four points noted in Fig.7.

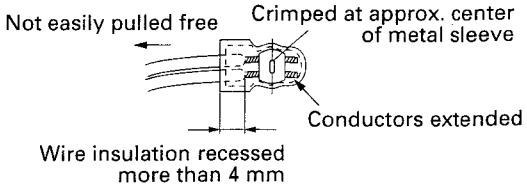

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

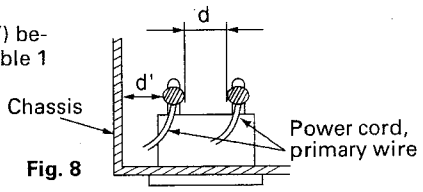


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method : (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

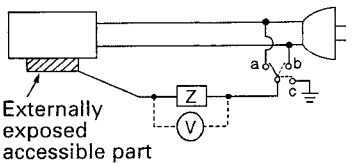


Fig. 9

5. **Grounding (Class Ⅰ model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

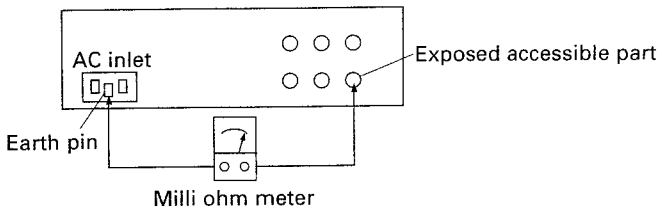


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS (This instraction manual is for the GR-SX950)

Dear Customer,
Thank you for purchasing the JVC Compact VHS camcorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of this product.

Using This Instruction Manual
- All major sections and subsections are listed in the Table Of Contents on the cover.
- Notes appear after most subsections. Be sure to read these as well.
- Basic and advanced features/operation are separated for easier reference.

It is recommended that you . . .
.... refer to the Index (☞ pgs. 42 – 45) and familiarize yourself with button locations, etc. before use.
.... read thoroughly the Safety Precautions and Safety Instructions that follow. They contain extremely important information regarding the safe use of this product.

You are recommended to carefully read the cautions on pages 46 – 47 before use.

SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V16U AC Power Adapter/Charger should be used with:
AC 120 V~, 60 Hz in the USA and Canada,
AC 110 – 240 V~, 50/60 Hz in other countries.

CAUTION (applies to the AA-V16U)
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION (s'applique à l'AA-V16U)
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Warning on lithium battery (for clock operation)
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace the battery with Maxell, Panasonic (Matsushita Electric), Sanyo or Sony CR2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

NOTES:
- *The rating plate (serial number plate) and safety caution are on the bottom and/or the back of the main unit.*
- *The rating information and safety caution of the AC Power Adapter/Charger are on its bottom.*

This camcorder is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V11U/V12U/V20U battery packs and, to recharge them, the provided multi-voltage AC Power Adapter/Charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

ATTENTION:
The product that you have purchased is powered by a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

The EPA certified RBRC® Battery Recycling Seal on the nickel-cadmium (Ni-Cd) battery indicates JVC is voluntarily participating in an industry program to collect and recycle these batteries at the end of their useful life, when taken out of service in the United States. The RBRC® program provides a convenient alternative to placing used Ni-Cd batteries into the trash or the municipal waste stream, which may be illegal in your area. Please call 1-800-8-BATTERY™ for information on Ni-Cd battery recycling and disposal bans/restrictions in your area. JVC's involvement in this program is part of our commitment to preserving our environment and conserving our natural resources.

When the equipment is installed in a cabinet or on a shelf, make sure that is has sufficient space on all sides to allow for ventilation (10 cm (3-15/16") or more on both sides, on top and at the rear).

Do not block the ventilation holes.
(If the ventilation holes are blocked by a newspaper, or cloth etc. the heat may not be able to get out.)

No naked flame sources, such as lighted candles, should be placed on the apparatus.

When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.

The apparatus shall not be exposed to dripping or splashing.

Do not use this equipment in a bathroom or places with water.
Also do not place any containers filled with water or liquids (such as cosmetics or medicines, flower vases, potted plants, cups etc.) on top of this unit.
(If water or liquid is allowed to enter this equipment, fire or electric shock may be caused.)

IMPORTANT PRODUCT SAFETY INSTRUCTIONS

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This product has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION:
Follow and obey all warnings and instructions marked on your product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this product and keep this manual for future reference.

INSTALLATION

1. Grounding or Polarization

(A) Your product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

(B) Your product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources

Operate your product only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. If your product is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

4. Power Cord Protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

5. Ventilation

Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.

- Do not block the openings by placing the product on a bed, sofa, rug or other similar surface.
- Do not place the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

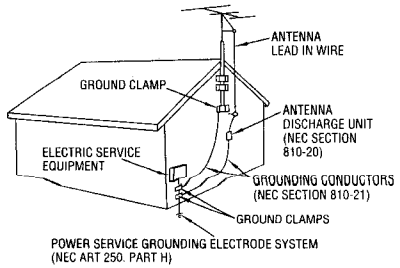
2. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

3. Power Lines

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC – NATIONAL ELECTRICAL CODE

USE

1. Accessories

To avoid personal injury:

- Do not place this product on an unstable cart, stand, tripod, bracket or table. It may fall, causing serious injury to a child or adult, and serious damage to the product.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the product.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

2. Product and Cart Combination

PORTABLE CART WARNING (Symbol provided by RETAC)

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

3. Water and Moisture

Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

4. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

5. Attachments

Do not use attachments not recommended by the manufacturer of this product as they may cause hazards.

6. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SERVICING

1. Servicing

If your product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- **a.** When the power supply cord or plug is damaged.
- **b.** If liquid has been spilled, or objects have fallen into the product.
- **c.** If the product has been exposed to rain or water.
- **d.** If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- **e.** If the product has been dropped or damaged in any way.
- **f.** When the product exhibits a distinct change in performance—this indicates a need for service.

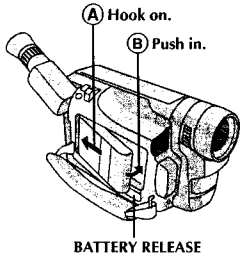
3. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

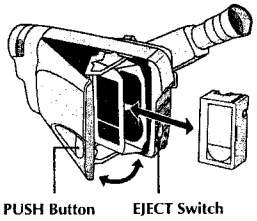
SUPPLY POWER



Using the battery pack
Hook its end to the camcorder Ⓐ and push the battery pack in until it locks in place Ⓑ.
(Charging procedure, ☞ pg. 8)

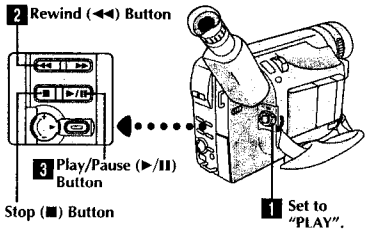
To remove the battery pack
Slide **BATTERY RELEASE** and pull out the battery pack.

INSERTING A VIDEO CASSETTE



1 Slide **EJECT** to open the cassette holder.
2 Insert a video cassette.
3 Press **PUSH** to close the cassette holder.
(For more details, ☞ pg. 10)

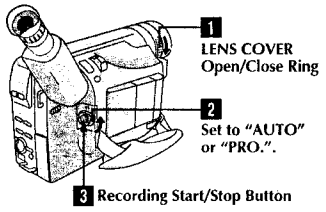
PLAYBACK



1 Set the Power Switch to "PLAY".
2 Press ◀◀.
— The tape will automatically stop at the beginning of the tape.
3 Press ▶/II.
— Playback starts and the playback picture appears.
• To stop playback, press ■.
(For more details, ☞ pg. 31.)

Or simply play back the tape on a VHS VCR using the Cassette Adapter (VHS Playpak). ☞ pg. 33

SHOOTING



1 Turn the **LENS COVER** Open/Close Ring to open the lens cover.
2 Set the Power Switch to "AUTO" or "PRO.".
— The power lamp will light and an image will appear.
3 Press the Recording Start/Stop Button.
— Recording starts.
• To stop recording temporarily, momentarily press the Recording Start/Stop Button once again.
(For more details, ☞ pgs. 16, 17)

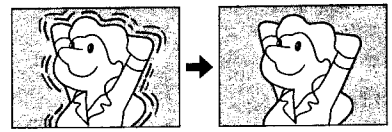
Integrated Auto Light (☞ pg. 20)

Program AE with Special Effects (☞ pg. 22)
■ Electronic Fog Filter ■ ND Effect
■ Sepia ■ Twilight ■ Sports ■ Nega/Posi
■ 1/2000 sec. High Speed Shutter

Super VHS-ET (☞ pg. 13)

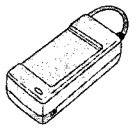
TBC (Time Base Corrector) (☞ pg. 32)

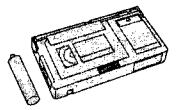
Picture Stabilizer (☞ pg. 18)



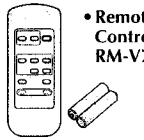
Digital Hyper Zoom (☞ pg. 18)

PROVIDED ACCESSORIES


• AC Power Adapter/ Charger AA-V16U


• Cassette Adapter (VHS Playpak) C-P7U

• Shoulder Strap


• Remote Control Unit RM-V715U

• Battery Pack BN-V11U

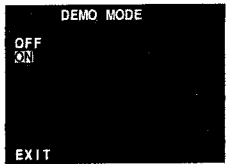
• DC Cord

• Lithium Battery CR2025 (for clock operation)

NOTES about Automatic Demonstration

Automatic Demonstration takes place when "DEMO MODE" is set to "ON" (factory-preset).

■ *Available when the Power Switch is set to "AUTO" or "PRO.".*
■ *Operating the Power Zoom Lever during the demonstration stops the demonstration temporarily. If the Power Zoom Lever is not moved for more than 1 minute after that, the demonstration will resume.*
■ *To cancel Automatic Demonstration, set the Power Switch to "PRO." and press **MENU** while the demo is in progress. This takes you directly to the demo mode's Setting Menu (so you will not have to go through the main Menu Screen.) Rotate the Select Wheel to select "OFF" and press it. The Menu Screen appears with the highlight bar on "RETURN". Press it to close the Menu Screen.*

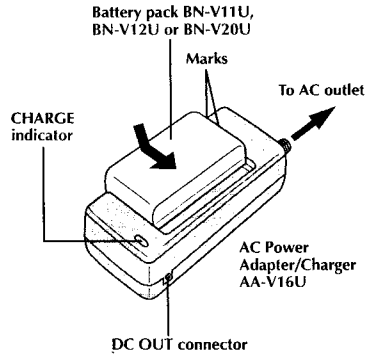


Setting Menu

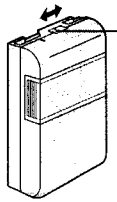
** "DEMO MODE" remains "ON" even if the camcorder power is turned off.*

NOTE:
When a tape whose Erase Protection tab is in the position that allows recording is loaded in the camcorder, demonstration is not available.

S-VHS C VHS C HQ Cassettes marked S-VHS C and VHS C can be used with this camcorder.



Battery pack	Charging time
BN-V11U	approx. 1 hr. 10 min.
BN-V12U (optional)	approx. 1 hr. 10 min.
BN-V20U (optional)	approx. 1 hr. 50 min.



ATTENTION:
Charging a battery with some charge remaining reduces that battery's capacity. Perform the procedure below to fully discharge the battery pack before recharging.

1. Attach the battery pack to the camcorder and make sure a cassette is ***not*** inserted, then set the Power Switch to "AUTO" or "PRO.".
2. The camcorder power turns off automatically when discharging is complete.

When you are not using a battery pack for a long period of time, be sure to fully discharge it before storing because leaving a battery with some charge left over also reduces performance.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power. Do not use provided power supply units with other equipment.

CHARGING THE BATTERY PACK

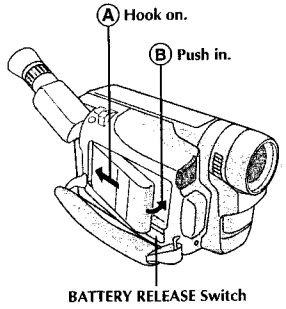
1. Make sure you unplug the camcorder's DC cord from the AC Power Adapter/Charger. Plug the AC Adapter/Charger's power cord into an AC outlet.
2. Align the marks and slide the battery pack in the direction of the arrow until it locks in place. The CHARGE indicator begins blinking to indicate charging has started.
3. When the CHARGE indicator stops blinking but stays lit, charging is finished. Slide the battery in the opposite direction of the arrow and lift off. Remember to unplug the AC Adapter/Charger's power cord from the AC outlet.

Charge Marker

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colors are provided (red and black)—you choose which one means charged and which means discharged.

NOTES:

- *Perform charging where the temperature is between 10° and 35°C (50°F and 95°F). 20° to 25°C (68°F to 77°F) is the ideal temperature range for charging. If the environment is too cold, charging may be incomplete.*
- *Charging times noted above are for a fully discharged battery pack.*
- *Charging time varies according to the ambient temperature and the status of the battery pack.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *If you connect the camcorder's DC cord to the adapter during battery charging, power is supplied to the camcorder and charging stops.*
- *Since the AC Power Adapter/Charger processes electricity internally, it becomes warm during use. Be sure to use it only in well-ventilated areas.*
- *When charging the battery pack for the first time or after a long storage period, the CHARGE indicator may not light. In this case, remove the battery pack from the AC Power Adapter/Charger, then try charging again.*
- *If the battery operation time remains extremely short even after having been fully charged, the battery is worn out and needs to be replaced. Please purchase a new one.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*



ATTENTION:
Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

USING THE BATTERY PACK

Hook its end to the camcorder Ⓐ and push the battery pack in until it locks in place Ⓑ.

- If the battery pack is attached in the wrong position, a malfunction may occur.

To Detach The Battery Pack . . .

.... slide **BATTERY RELEASE** and pull out the battery pack.

Battery pack	Approximate recording time
BN-V11U	1 hr. 45 min. (50 min.)
BN-V12U (optional)	1 hr. 45 min. (50 min.)
BN-V20U (optional)	2 hrs. 50 min. (1 hr. 30 min.)
BN-V856U (optional)	11 hrs. 10 min. (6 hrs.)

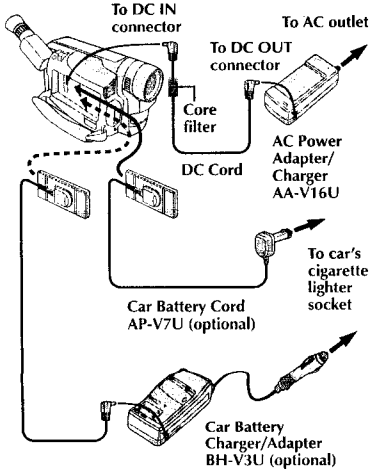
( ) : when the video light is on.

NOTES:

- *Recording time is reduced significantly if zoom or Record-Standby mode is engaged repeatedly.*
- *Before extended use, it is recommended that you prepare enough battery packs to cover 3 times the planned shooting time.*

INFORMATION:

VU-V856KIT is a set composed of the BN-V856U battery pack and AA-V80U AC Power Adapter/Charger.
Read the VU-V856KIT's instruction manuals before using.
It is impossible to charge the BN-V856U battery pack using the provided AC Power Adapter/Charger. Use the optional AA-V80U AC Power Adapter/Charger.



USING AC POWER

Use the AC Power Adapter/Charger (connect as shown in the illustration).

NOTES:

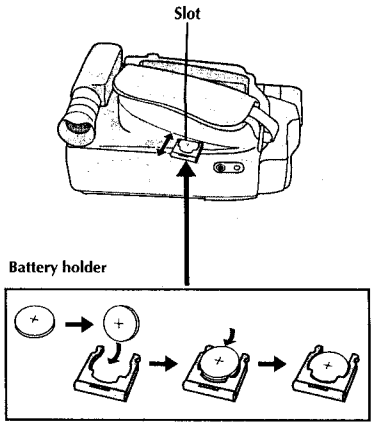
- *The provided AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.*
- *For other notes, ☞ pg. 8.*

USING A CAR BATTERY

Use the optional Car Battery Cord or Car Battery Charger/Adapter (connect as shown in the illustration).

NOTES:

- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3U) can also be used to charge the battery pack (except BN-V20U/V856U).*
- *When using the optional Car Battery Charger or Car Battery Cord (AP-V7U), refer to the respective instruction booklet.*



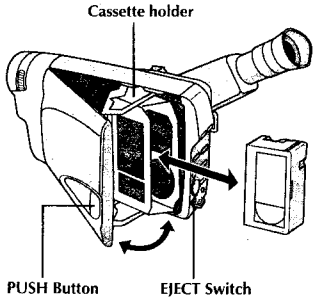
Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1. Switch off the unit's power and remove the power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.).
2. Pull out the battery holder to remove it from the camcorder.
3. Insert the battery in the holder, and be sure to have the "+" mark visible.
4. Slide the holder back into the slot until you hear a click.

NOTES:

- *See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.*
- *To avoid losing the battery and/or battery holder, place the camcorder with the grip side up as shown in the illustration when inserting/removing the battery.*

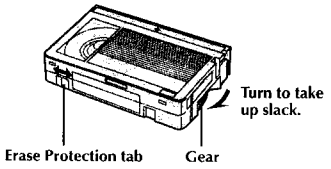


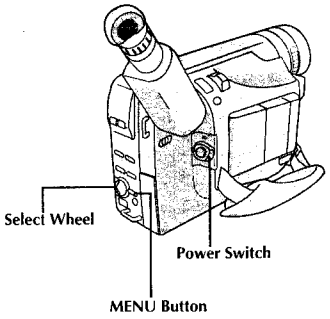
Loading/Unloading A Cassette

1. Slide **EJECT** until the cassette holder opens. Do not use force to open.
2. Insert or remove a cassette. When inserting, make sure the label is facing outward.
3. Press **PUSH** to close the cassette holder until it locks into place.

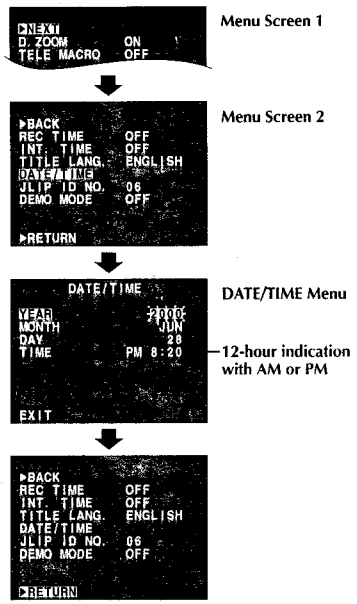
NOTES:

- *The cassette holder can't be opened unless a power supply is attached.*
- *Make sure that the tape is not slack when loading the cassette. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up the slack.*
- *Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *The cassette holder cannot be opened while the camcorder is in the record mode.*





Display

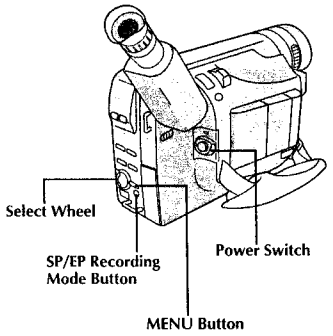


Date/Time Settings

1. Set the Power Switch to "PRO.". The power lamp comes on.
2. Press **MENU**. The Menu Screen appears.
3. Rotate the Select Wheel to move the highlight bar to "NEXT" in Menu Screen 1 and press it to display Menu Screen 2. Then, rotate it to move the highlight bar to "DATE/TIME" and press it. The DATE/TIME Menu appears.
   - To return to the previous settings, rotate the Select Wheel to move the highlight bar to "EXIT" and press it, then go to step 7.
   - To set only the time without changing the date, go to step 5.
4. To set "YEAR", "MONTH" or "DAY", rotate the Select Wheel to move the highlight bar to the desired item, and press it. When the setting begins blinking, rotate the Select Wheel until the correct setting appears and then press it. The setting stops blinking.
   Repeat for other date settings.
5. Rotate the Select Wheel to move the highlight bar to "TIME" and then press it. When the hour setting begins blinking, rotate the Select Wheel until the correct setting appears and then press it. When the hour setting stops blinking and the minute setting begins blinking, rotate the Select Wheel until the correct setting appears and then press it. The minute setting stops blinking.
6. When none of these settings ("YEAR", "MONTH", "DAY", "TIME") blinks, rotate the Select Wheel to move the highlight bar to "EXIT", and press it. The Menu Screen reappears with the highlight bar on "RETURN".
7. Press the Select Wheel to close the Menu Screen.

NOTE:

To display the date and time in the camcorder's display and on a connected TV, see "Date/Time Insert" (☞ pg. 26).

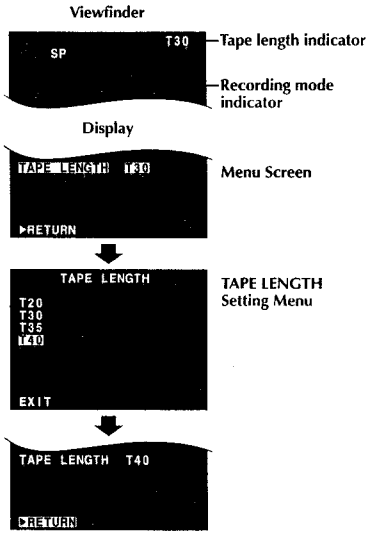


Recording Mode Setting

Set depending on your preference.

1 Set the Power Switch to "AUTO" or "PRO.". Press **SP/EP** for more than 1 second. "SP" (Standard Play) provides higher picture and sound quality and is better for dubbing, while "EP" (Extended Play) is more economical, providing three times the recording time.

NOTE:
If the recording mode is switched during recording, the playback picture will be blurred at the switching point.



Tape Length Setting

Set the tape length according to the length of the tape used.

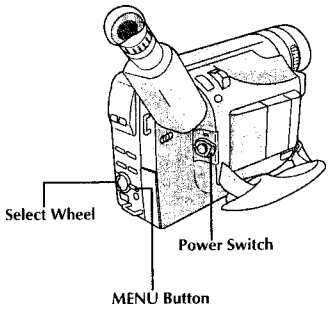
1 Set the Power Switch to "PRO.", then press **MENU**.

2 Rotate the Select Wheel to move the highlight bar to "TAPE LENGTH", then press it. The TAPE LENGTH Setting Menu appears.

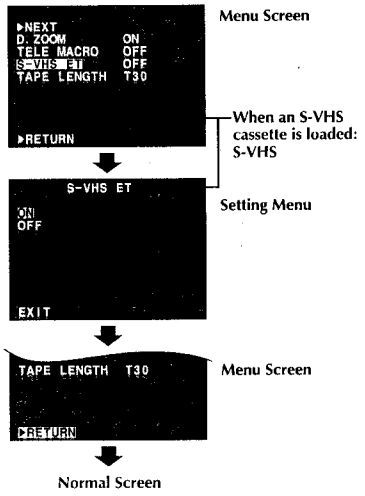
3 Rotate the Select Wheel to move the highlight bar to the correct tape length setting. T20=20 minutes of recording time, T30=30 minutes, T35=35 minutes, and T40=40 minutes (in SP).
- To return to the previous setting, rotate the Select Wheel to move the highlight bar to "EXIT".

4 Press the Select Wheel. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel again to close the Menu Screen.

NOTE:
The tape remaining time (☞ pg. 16) displayed in the viewfinder is correct only if the correct tape length has been selected.



Display: when a VHS cassette is loaded.



Recording Format Setting

Set the recording format according to the format of the tape used or type of recording you wish to perform.

1 Set the Power Switch to "PRO.". Press **MENU**.

2 ***If a VHS cassette is loaded . . .***
.... rotate the Select Wheel to move the highlight bar to "S-VHS ET", then press it. The S-VHS ET Setting Menu appears.

If an S-VHS cassette is loaded . . .
.... rotate the Select Wheel to move the highlight bar to "S-VHS", then press it. The S-VHS Setting Menu appears.

3 Rotate the Select Wheel to set to either of the parameters, then press it. The highlight bar moves to "EXIT".

In the S-VHS ET Setting Menu,
ON : Records with S-VHS picture quality on a VHS cassette (factory-preset). This is called Super VHS ET (Expansion Technology).
OFF : Records in VHS.

In the S-VHS Setting Menu,
ON : Records in S-VHS on an S-VHS cassette (factory-preset).
OFF : Records in VHS on an S-VHS cassette.

4 Press the Select Wheel. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel again to close the Menu Screen.
- When the S-VHS ET mode is engaged, "S-ET" is displayed.
- During S-VHS record mode, "S" is displayed.
- When S-VHS ET or S-VHS recording starts, "S-VHS REC." is displayed for approx. 3 seconds.

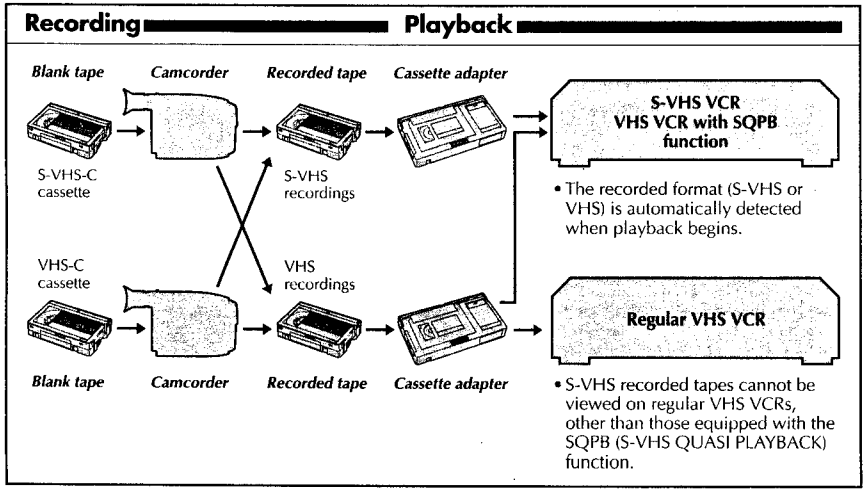
NOTE:
If a cassette is not loaded, "S-VHS" will be displayed in the Menu Screen.

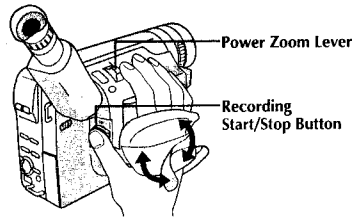
CONTINUED ON NEXT PAGE.

NOTES about S-VHS and S-VHS ET

- *JVC EHG (Extra High Grade) tapes are recommended for superior results.*
  Use S-VHS tape for storing recordings for an extended period or for recording important scenes, as it enables higher-quality recording and playback.
- *With some tapes, better picture quality may not be obtained even with S-VHS ET recording. It is recommended that you do test record beforehand to make sure whether better results can be obtained.*
- *If the S-VHS ET mode or recording format is switched during recording, the playback picture will be blurred at the switching point.*
- *It is recommended that tapes recorded in the SP mode on this camcorder be played back on this camcorder.*
- *Noise may appear on-screen when tapes recorded in the EP mode are played back.*
- *Tapes recorded in S-VHS or S-VHS ET mode can be played back not only on this camcorder but also on a Super VHS VCR or a VCR equipped with the SQPB (S-VHS QUASI PLAYBACK) function.*
  - *— When tapes recorded in S-VHS or S-VHS ET mode are played back on a VCR equipped with the SQPB (S-VHS QUASI PLAYBACK) function, S-VHS picture quality is not available.*
  - *— Tapes recorded in S-VHS ET mode cannot be played back on some VCRs, including some JVC VCRs (eg: HR-S6600U, HR-SC1000U, etc.).*
- *Tapes recorded in S-VHS or S-VHS ET mode cannot be played back correctly on a normal VHS VCR.*
- *You can play back S-VHS ET recordings not only on this VCR but also on another VHS VCR equipped with S-VHS ET.*
  - *— It is recommended to specifically label S-VHS ET recordings so you can easily distinguish them from regular VHS recordings.*
- *S-VHS ET does not work with S-VHS tapes.*
- *To avoid on-screen noise, do not perform Still Playback or Shuttle Search repeatedly.*
- *If the picture contains a lot of jitter or noise, use a cleaning cassette.*

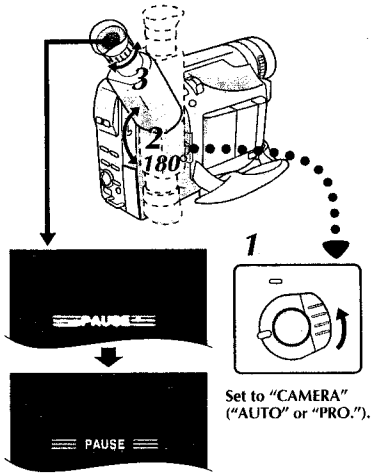
Compatibility Between S-VHS And VHS


Recording
Playback
Blank tape
Camcorder
Recorded tape
Cassette adapter
S-VHS-C cassette
S-VHS recordings
VHS-C cassette
VHS recordings
S-VHS VCR
VHS VCR with SQPB function
• The recorded format (S-VHS or VHS) is automatically detected when playback begins.
Regular VHS VCR
• S-VHS recorded tapes cannot be viewed on regular VHS VCRs, other than those equipped with the SQPB (S-VHS QUASI PLAYBACK) function.



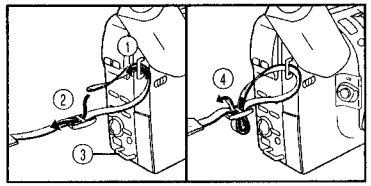
Grip Adjustment

1. Separate the Velcro strip.
2. Pass your right hand through the loop and grasp the grip.
3. Adjust so that your thumb and fingers can easily operate the Recording Start/Stop Button and Power Zoom Lever. Refasten the Velcro strip.



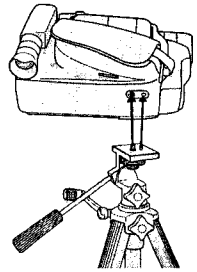
Viewfinder Adjustment

1. Set the Power Switch to "CAMERA" ("AUTO" or "PRO.").
2. Adjust the viewfinder manually for best viewability.
3. Turn the Diopter Adjustment Control until the indications in the viewfinder are clearly focused.



Shoulder Strap Attachment

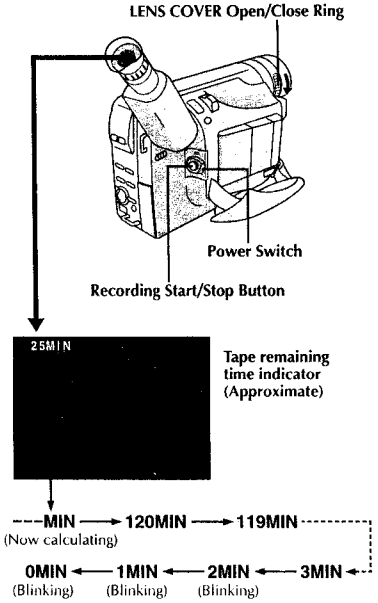
1. Following the illustration, thread the strap through the eyelet ①, then fold it back and thread it through the buckle ②. Repeat the procedure to attach the other end of the strap to the other eyelet ③, making sure the strap is not twisted.
2. Adjust as shown in the illustration ④.



Tripod Mounting

1. Align the screw and camera direction stud on the tripod with the camera's mounting socket and stud hole. Then tighten the screw.

CAUTION:
When using a tripod, be sure to open and extend its legs fully to stabilize the camcorder. To prevent damage to the unit caused by falling over, do not use a small-sized tripod.



NOTE:

You should already have performed the procedures listed below. If not, do so before continuing.

- *Power (☞ pg. 8)*
- *Recording Mode Setting (☞ pg. 12)*
- *Load A Cassette (☞ pg. 10)*
- *Grip Adjustment (☞ pg. 15)*
- *Viewfinder Adjustment (☞ pg. 15)*

1 Turn the **LENS COVER** Open/Close Ring to open the lens cover. Set the Power Switch to "CAMERA" ("AUTO" or "PRO."). The power lamp lights and the camcorder enters the Record-Standby mode. "PAUSE" is displayed in the viewfinder.

2 Press the Recording Start/Stop Button. "REC ▶▶▶" appears in the viewfinder while recording is in progress.

To Stop Recording . . .

.... press the Recording Start/Stop Button. The camcorder re-enters the Record-Standby mode.

Power Switch Position°

AUTO : Suitable for standard recording using NO special effects or manual adjustments.

PRO. : Allows you to set recording functions using the menus for more creative capabilities.

OFF : Switches off the camcorder.

PLAY : Allows you to play back your recordings.

NOTES:

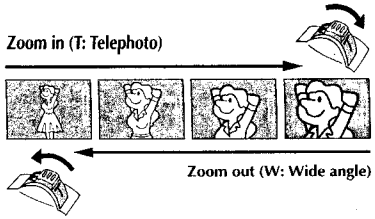
- *The cassette holder cannot be opened unless a power supply is attached.*
- *There may be a delay after you slide **EJECT** until the cassette holder opens. Do not use force.*
- *The time required to calculate the remaining tape length, and the accuracy of the calculation, may vary according to the type of tape used.*
- *The tape remaining time indicator is correct only if the correct tape length has been selected (☞ pg. 12).*
- *"TAPE END" appears when the tape reaches its end, and the power goes off automatically if left in this condition for 5 minutes. "TAPE END" also appears when a cassette whose tape is already at its end is loaded.*
- *If the Record-Standby mode continues for 5 minutes without performing Zoom or any other operations, the camcorder's power shuts off automatically. Set the Power Switch to "OFF", and then back to "CAMERA" to turn the camcorder on again.*
- *If the Recording Start/Stop button is pressed after the Record-Standby mode has continued for over 5 minutes, recording may not start immediately.*
- *If you are recording on a cassette from the middle (such as when a tape is removed and re-inserted during recording), use the Retake function (☞ pg. 19) to find the end of the last recording so you do not erase any of it.*

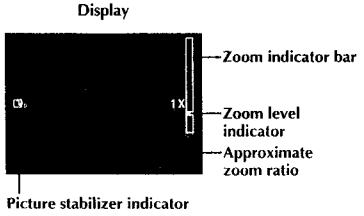
VIEWFINDER INDICATIONS

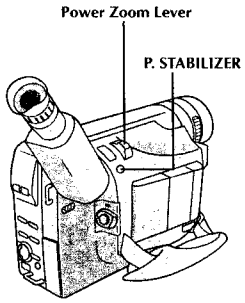
Press **DISPLAY** for more than 1 second to make the following indications appear/disappear from the camcorder's display: cassette warning, tape remaining time, battery pack remaining power indicator and tape length indicator (☞ pg. 44, 45).

NOTE:

Even if the indications are off, the tape remaining time appears blinking when the tape is near its end, and the battery pack remaining power indicator appears blinking when the power is almost gone.







FEATURE: Zooming

PURPOSE:

To produce the zoom in/out effect, or an instantaneous change in image magnification.
Digital circuitry extends the maximum magnification offered by optical zoom. This system is called Digital Zoom.

OPERATION:

Zoom In

Slide the Power Zoom Lever towards "**T**".

Zoom Out

Slide the Power Zoom Lever towards "**W**".

- The further you slide the Power Zoom Lever, the quicker the zoom action.

NOTES:

- *Focusing may become unstable during Zooming. In this case, set the zoom while in Record–Standby, lock the focus by using the manual focus (☞ pg. 29), then zoom in or out in Record mode.*
- *The zoom level indicator (■) moves during zoom. Once the zoom level indicator reaches the top of the zoom indicator bar, all magnification from that point is through digital processing.*
- *When using Digital Zoom, the quality of image may suffer. To deactivate Digital Zoom, set "D.ZOOM" to "OFF" in the Menu Screen (☞ pg. 24).*

FEATURE: Picture Stabilizer

PURPOSE:

To compensate for unstable images caused by camera-shake, particularly at high magnification.

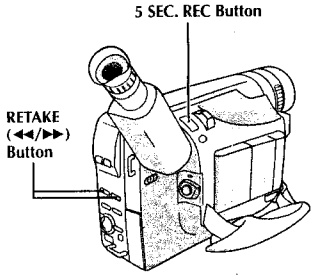
OPERATION:

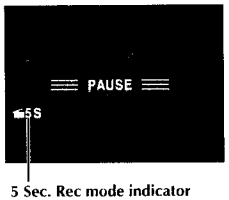
Press **P. STABILIZER**. "✋" appears.

- To switch off the Picture Stabilizer, press **P. STABILIZER**. The indicator disappears.

NOTES:

- *Accurate stabilization may not be possible if hand shake is excessive, or under the following conditions:*
  - *When shooting subjects with vertical or horizontal stripes.*
  - *When shooting dark or dim subjects.*
  - *When shooting subjects with excessive backlighting.*
  - *When shooting scenes with movement in various directions.*
  - *When shooting scenes with low-contrast backgrounds.*
- *Switch off the Picture Stabilizer when recording with the camcorder on a tripod.*
- *The "✋" indicator appears blinking if the Stabilizer cannot be used.*





FEATURE: Quick Review

PURPOSE:

To check the end of the last recording.

OPERATION:

1) Set the Power Switch to "CAMERA" ("AUTO" or "PRO.").
2) Press ◀◀ and release quickly during the Record–Standby mode.

- Tape is rewound for approx. 2 seconds and played back automatically, then pauses in Record–Standby mode for the next shot.

NOTE:

Distortion may occur at the start of playback. This is normal.

FEATURE: Retake

PURPOSE:

To re-record certain segments.

OPERATION:

1) Make sure the camcorder is in the Record–Standby mode.
2) Press and hold either **RETAKE** to reach the start point for new recording. Pressing ▶▶ forwards the tape and pressing ◀◀ reverses it.
3) Press the Recording Start/Stop Button to start recording.

NOTE:

Noise bars appear and pictures may become monochrome or darken during Retake. This is normal.

FEATURE: 5Sec. Rec (5-sec. Recording)

PURPOSE:

To record a scene for 5 seconds, providing quick scene transitions like those seen in TV programs.

OPERATION:

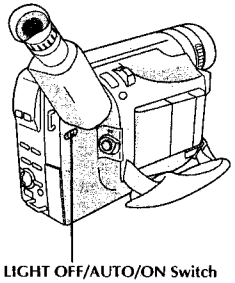
- Make sure the recording mode is set to "SP".

1) During Record–Standby, press **5SEC. REC.** "5S" appears and 5Sec. Rec is reserved.
2) Press the Recording Start/Stop Button. Recording starts, and after 5-second recording is finished, the camcorder reenters the Record–Standby mode automatically.

- To cancel the 5Sec. Rec. function, press **5SEC. REC** again so that "5S" disappears.

NOTE:

*Fade/Wipe (☞ pg. 21) cannot be activated by pressing **5SEC. REC**.*



LIGHT OFF/AUTO/ON Switch

DANGER

- The video light can become extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm (11-13/16") between the video light and people or objects.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

FEATURE: Video Light

PURPOSE:

To brighten the scene when natural lighting is too dim.

OPERATION:

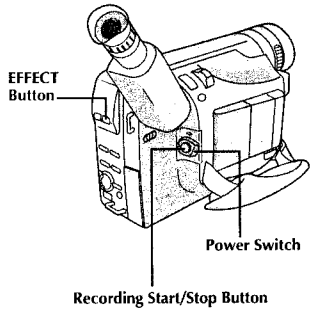
Set **LIGHT OFF/AUTO/ON** as required:

OFF : Turns off the light.
AUTO : Automatically turns on the light when the camcorder senses insufficient lighting on the subject.
ON : Always keeps the light on as long as the camcorder is turned on.

- The video light can only be used with the camcorder's power on.
- It is recommended to set the white balance (☞ pg. 30) to ☀ when you use the video light.
- When not using the video light, turn it off to save battery power.

NOTES:

- *Even if the battery indicator (▭) does not blink if the battery pack's charge is low, the camcorder may turn off automatically when you turn on the video light, or when you start recording with the video light turned on.*
- *When **LIGHT OFF/AUTO/ON** is set to "AUTO":*
  - *Depending on the lighting conditions, the video light may keep turning on and off. In this case, manually switch the light on or off using **LIGHT OFF/AUTO/ON**.*
  - *While the "Sports" or "High Speed Shutter" mode (☞ pg. 22) is engaged, the light is likely to stay on.*
  - *While the "Twilight" mode (☞ pg. 22) is engaged, the light will not activate.*



EFFECT Button

Power Switch

Recording Start/Stop Button

Fade/Wipe Effects

These effects let you make pro-style scene transitions. Fade- or wipe-in works at recording start, and fade- or wipe-out works at recording end or when you enter Record–Standby mode.

1. Set the Power Switch to "PRO.".
2. Press **EFFECT** repeatedly until the desired mode's name and indication appear.
   They are displayed for approx. 2 seconds, then the name disappears so that only the indication remains.
   The effect is reserved.
3. Press the Recording Start/Stop Button to activate fade-in/out or wipe-in/out.
4. To cancel a fade or wipe, press **EFFECT** repeatedly until "OFF" appears.
   "OFF" is displayed for approx. 2 seconds and the fade/wipe standby mode is canceled.

NOTES:

- *Pressing and holding the Recording Start/Stop Button allows you to vary the length for the image during fade in/out or wipe in/out.*
- *The screen becomes slightly reddish when the Fade/Wipe is used with Sepia (☞ pg. 22).*
- *With the Electronic fog filter mode (☞ pg. 22) engaged, the image fades in/out to a white screen.*

BK FADER

Fades in/out to a black screen.

MOSAIC (Fader)

Gradually turns/returns the picture into/from a mosaic pattern.

SHUTTER (Wipe)

A black screen moves in from the top and bottom, closing over the image like a shutter, or a new image pushes open the black screen vertically from the center.

SLIDE (Wipe)

A black screen moves in from the left to gradually cover the image, or a new image moves in from right to left.

DOOR (Wipe)

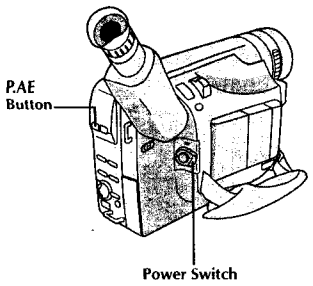
Wipes in as the two halves of a black screen open to the left and right, revealing the scene, or wipes out and the black screen reappears from left and right to cover the scene.

CW:CORNER (Wipe)

Wipes in on a black screen from the upper right to the lower left corner, or wipes out from lower left to upper right, leaving a black screen.

WW:WINDOW (Wipe)

The next scene gradually wipes in from the center of the screen toward the corners, covering the previous scene.



Program AE With Special Effects

1 Set the Power Switch to "PRO.".

2 Press **P.AE** repeatedly until the desired mode's name and indication appear.
They are displayed for approx. 2 seconds, then the name disappears so that only the indication remains. The mode is activated.

3 To cancel the effect, press **P.AE** repeatedly until "OFF" appears. "OFF" is displayed for approx. 2 seconds.

NOTES:
- *Only one mode can be engaged at a time.*
- *The screen becomes slightly reddish when the Fade/Wipe (☞ pg. 21) is used in the Sepia mode.*
- *The screen becomes slightly dark in the High Speed Shutter mode. Use in well-lit situations.*
- *In the "High Speed Shutter" or "Sports" modes, picture color may be adversely affected if the subject is lit by alternating discharge-type light sources such as flourescent or mercury-vapor lights.*

SEPIA
The scene being shot is recorded in sepia-tinted (reddish-brown) monochrome, giving the effect of an older movie. Use together with Wide (☞ pg. 24) for the authentic look of a classic Hollywood movie.

SPORTS
High shutter speed clearly captures fast-moving action.

ND:ND EFFECT
A black mist darkens the picture, as when an ND filter is used. Helps to counter the effects of glare on the subject.

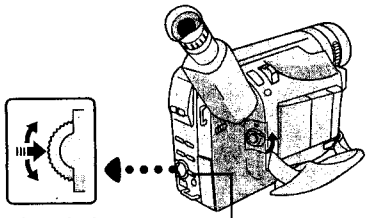
FG:FOG
Makes the picture look misty white, as when an external fog filter is attached to the lens. Softens the image and gives it a "fantasy" look.

TWILIGHT
Dusk, twilight scenery, fireworks, etc., look more natural and dramatic. The following happens when Twilight mode is selected:
- Auto gain control is turned off.
- White Balance is set to "☀:FINE" (day mode), but can also be manually changed to another mode (☞ pg. 30).
- Auto Focus becomes available only in the range of 10 m (32 ft.) to infinity. To focus when the subject-to-camera distance is less than 10 m (32 ft.), use manual focusing (☞ pg. 29).

S1/2000
Captures faster action than Sports mode.

NEGA POSI
The colors of a picture are reversed.

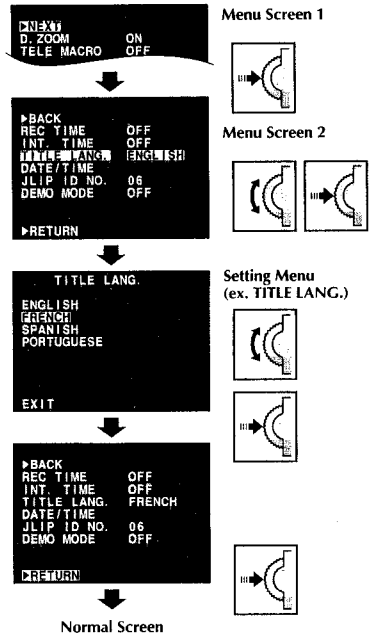
NEGA POSI mode



Using Menus For Detailed Adjustment

This camcorder is equipped with an easy-to-use, on-screen menu system that simplifies many of the more detailed camcorder settings.

Display
(ex. Menu Screen available using the MENU Button)



1 Set the Power Switch to "PRO.".

2 Menu access depends on the function you select.
If you select the functions from the "Menu Screen Available Using The Select Wheel" described on pg. 24 . . .
.... press the Select Wheel. The Menu Screen appears.
If you select the functions from the "Menu Screen Available Using The MENU Button" described on pg. 24 and 25 . . .
.... press **MENU**. The Menu Screen appears.

3 Rotate the Select Wheel to place the highlight bar on the desired function.
- To go from Menu Screen 1 to Menu Screen 2, rotate the Select Wheel to "NEXT" and press it. To go back to Menu Screen 1 from Menu Screen 2, rotate the Select Wheel to "BACK", and press it.
- To return to the previous setting, place the highlight bar on "RETURN", then go to step **6**.

4 Press the Select Wheel. The setting procedure depends on the function you select.
If you select "FOCUS", "EXPOSURE", "M.W.B." or "DATE/ TIME". . .
.... see respective pages (FOCUS: ☞ pg. 29, EXPOSURE: ☞ pg. 28, M.W.B.: ☞ pg. 30, DATE/TIME: ☞ pg. 11) and perform each procedure from step **4**.
If you select "JLIP ID NO." . . .
.... rotate the Select Wheel until the desired number appears, and press it. Then rotate the Select Wheel to move the highlight bar to "EXIT".
If you select any other functions . . .
.... rotate the Select Wheel to move the highlight bar to the desired setting.
- To return to the previous setting, place the highlight bar on "RETURN".

5 Press the Select Wheel. The Menu Screen reappears with the highlight bar on "RETURN".

6 Press the Select Wheel. The normal screen reappears.

NOTE:
No menu functions except "FOCUS" and "EXPOSURE" are available while in the Record mode.

MENU SCREEN EXPLANATIONS

Menu Screen Available Using The Select Wheel

FOCUS	Refer to "Focusing" (☞ pg. 29).	
EXPOSURE	Refer to "Exposure Control" (☞ pg. 28).	
M.W.B.	Refer to "White Balance Adjustment" and "Manual White Balance Operation" (☞ pg. 30).	
WIDE	**OFF**	Does not display black bars.
	ON	Allows you to record black bars at the top and bottom of the screen to produce a cinema-like "wide-screen" effect.
S.LX	**MAX**	To record a subject in a darkly lit environment, when it is more convenient to shoot the subject with a brighter image even if the picture becomes slightly coarse.
	NORMAL	To record a subject in a dimly lit environment, when it is more convenient to shoot with a less coarse picture although the subject becomes slightly dark. This setting is suitable for measuring sensitivity conforming to EIA-639 (EIA* Standard for Low Light Sensitivity Measurement). *EIA : Electronic Industries Alliance
	OFF	Allows you to shoot dark scenes with no picture brightness adjustment.
TITLE	Allows you to superimpose one of eight preset titles (☞ pg. 26).	
DATE/TIME DISP.	Makes the date/time settings appear in the camcorder or on a connected monitor (☞ pg. 26).	

Menu Screen Available Using The MENU Button

This Menu Screen cannot be accessed while recording.

D. ZOOM	**ON**	Allows you to use the Digital Zoom. By digitally processing and magnifying images, zooming is possible from 16X (the optical zoom limit), to a maximum of 300X digital magnification.
	OFF	Digital Zoom is not available. Only optical zoom (maximum 16x magnification) can function. When set to "OFF" during Digital Zoom, zoom magnification changes to 16X.
TELE MACRO	**OFF**	Usually the distance to a subject where the lens is in focus depends on the zoom magnification. Unless there is a distance of more than 1 m (3.25 ft.) to the subject, the lens is out of focus at the maximum telephoto setting. When set to "ON", you can shoot a subject as large as possible at a distance of approx. 60 cm (23-5/8"). • Depending on the zoom position, the lens may go out of focus.
	ON	

[ ] : Factory-preset

Menu Screen Available Using The MENU Button (cont.)

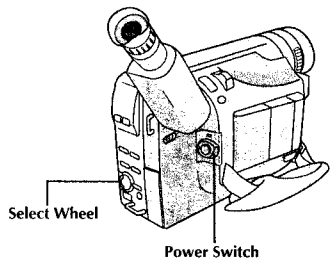
S-VHS* (S-VHS ET*)	**ON**	Records in S-VHS on a VHS or S-VHS cassette (☞ pg. 13).
	OFF	Records in VHS on a VHS or S-VHS cassette (☞ pg. 13).
TAPE LENGTH	Allows you to set the tape length depending on the tape used (☞ pg. 12).	
REC TIME	Refer to "Animation" and "Time-Lapse" (☞ pg. 27).	
INT. TIME	Refer to "Time-Lapse" (☞ pg. 27).	
TITLE LANG.	Allows you to select the language (ENGLISH, FRENCH, SPANISH or PORTUGUESE) of Instant Titles (☞ pg. 26).	
DATE/TIME	Allows you to set the current date and time (☞ pg. 11).	
JLIP ID NO.	This number is necessary when connecting the camcorder to a device such as a computer using the J terminal (JLIP). The numbers range from 01 to 99. Factory setting is 06.	
DEMO MODE	**ON**	Demonstrates certain functions such as Fade/Wipe, etc. When "DEMO MODE" is set to "ON" and the Menu Screen is closed, the demonstration starts. Operating the Power Zoom Lever during the demonstration stops the demonstration temporarily. If the Power Zoom Lever is not moved for more than 1 minute after that, the demonstration will resume. **NOTE:** *When a tape whose Erase Protection tab is in the position that allows recording is loaded in the camcorder, demonstration is not available.*
	OFF	Automatic demonstration will not take place.

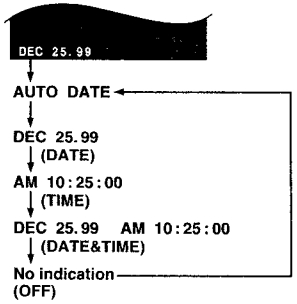
*S-VHS ET is displayed when a VHS cassette is loaded, and S-VHS is displayed when an S-VHS cassette is loaded (☞ pg. 13). If a cassette is not loaded, "S-VHS" will be displayed in the Menu Screen.
S-VHS ET is preset to "OFF".

[ ]: Factory-preset

Date/Time Insert

Allows you to display the date and time in the camcorder or on a connected color monitor, as well as to record them manually or automatically.
You should have already performed the Date/Time Setting procedure (☞ pg. 11).





1 Set the Power Switch to "PRO.".

2 Press the Select Wheel to display the Menu Screen.

3 Rotate the Select Wheel to move the highlight bar to "DATE/TIME DISP." while in Record-Standby, then press it to display the Date/Time DISP. Menu.

4 Rotate the Select Wheel to move the highlight bar to the desired mode, then press it. The desired mode is activated.

5 The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel to close the Menu Screen.

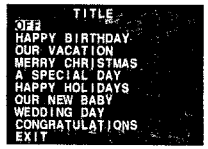
NOTES:

DISPLAY
- *The selected display can be recorded.*
- *If you do not want to record the display, select the OFF mode before shooting.*

AUTO DATE
- *Your camcorder automatically records the date for about 5 seconds after recording is initiated in the following situations:*
  - *After changing the date.*
  - *After loading a cassette.*
  - *After Auto Date Record mode is selected by rotating the Select Wheel.*
- *In this mode, the date is replaced after 5 seconds with "AUTO DATE" but this is not recorded.*

Instant Titles

The camcorder has eight preset titles in memory. You can superimpose one of them over the video image.
Instant Titles can be displayed not only in English but also in French, Spanish and Portuguese. Change the setting in TITLE LANG. in the Menu Screen. (☞ pg. 23, 25).



1 Set the Power Switch to "PRO.".

2 Press the Select Wheel to display the Menu Screen.

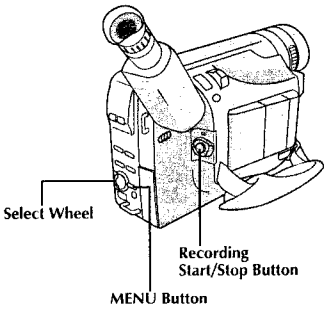
3 Rotate the Select Wheel to move the highlight bar to "TITLE" while in Record-Standby, then press it to display the TITLE Menu.

4 Rotate the Select Wheel to move the highlight bar to the desired mode, then press it. The desired mode is activated.
- To make the title indication disappear, select "OFF".

5 The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel to close the Menu Screen.

NOTE:
The selected title will remain until OFF is selected in the TITLE Menu.

NOTES:
Before performing the following steps, make sure that:
- *The Power Switch is set to "PRO.".*
- *The camcorder is in the Record-Standby mode.*
- *The recording mode is set to "SP".*



Display

REC TIME Menu

INT. TIME Menu

Interval time indicator

Recording time indicator

INT. TIME and REC TIME indications on the normal screen

Animation

You can shoot a series of pictures, each slightly different, of the same object for a brief period of time.

1 Press **MENU**. The Menu Screen appears.

2 Rotate the Select Wheel to move the highlight bar to "NEXT" in Menu Screen 1 and press it to display Menu Screen 2. Then, move the highlight bar to "REC TIME" and press it. The REC TIME Menu appears. Rotate the Select Wheel to move the highlight bar to the desired recording time, then press it. The Menu Screen reappears with the highlight bar on "RETURN".

3 Press the Select Wheel again to close the Menu Screen.

4 Press the Recording Start/Stop Button after focusing on the subject. The recording stops automatically after the selected period of time.
- Repeat step **4** for the desired number of pictures.

5 To release the Animation mode, set "REC TIME" in the Menu screen to "OFF".

Time-Lapse

You can record sequentially at preset time spans. Leaving the camcorder aimed at a specific subject, you can record subtle changes over an extended period of time.

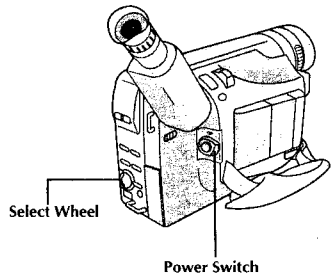
1 Set "REC TIME" (☞ step **1** and **2** of "Animation" above).

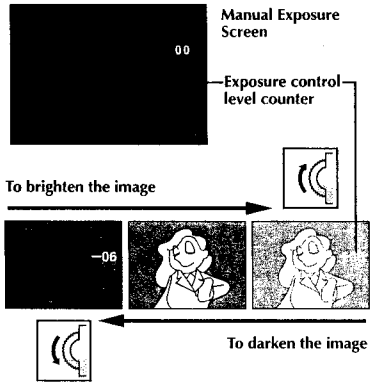
2 Rotate the Select Wheel to move the highlight bar to "INT. TIME" and press it. The INT. TIME Menu appears. Rotate the Select Wheel to move the highlight bar to the desired interval time, then press it. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel again to close the Menu Screen.

3 Press the Recording Start/Stop Button. Recording and intervals alternate automatically.

4 To release the Time-Lapse mode, when "REC ▶▶▶" is not displayed, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF".

NOTES (for Animation and Time-Lapse):
- *For best results, make sure the camcorder is secured when shooting in Animation or Time-Lapse mode.*
- *Fade- or wipe-in/out cannot be performed during Animation or Time-Lapse shooting.*
- *Before performing other operations following Animation or Time-Lapse recording, make sure the Animation or Time-Lapse mode is deactivated.*
- *Animation and Time-Lapse are canceled when the power is shut off or when the cassette is ejected.*





Exposure Control

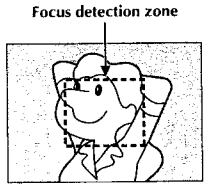
This feature automatically adjusts the iris for the best available picture quality, but you can override it and make the adjustment manually. Manual exposure adjustment is recommended in the following situations:

- *When shooting using reverse lighting or when the background is too bright.*
- *When shooting on a reflective natural background such as at the beach or when skiing.*
- *When the background is overly dark or the subject light.*

1. Set the Power Switch to "PRO.".
2. Press the Select Wheel to display the Menu Screen.
3. Rotate the Select Wheel to move the highlight bar to "EXPOSURE" and press it. The EXPOSURE Menu appears.
4. Rotate the Select Wheel to move the highlight bar to "MANU", then press it. The Menu Screen disappears and "00" (exposure control level counter) appears.
5. To brighten the image, rotate the Select Wheel upward. The exposure control level counter increases (maximum +06).
   To darken the image, rotate the Select Wheel downward. The exposure control level counter decreases (maximum –06).
6. Press the Select Wheel. The setting is complete. The Menu Screen reappears with the highlight bar on "RETURN".
7. Press the Select Wheel. The Menu Screen disappears and the exposure control level counter reappers to indicate the exposure is adjusted.

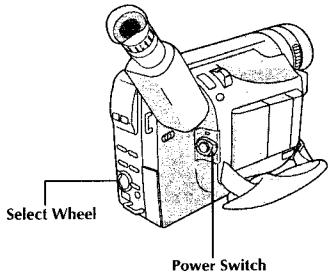
NOTES:

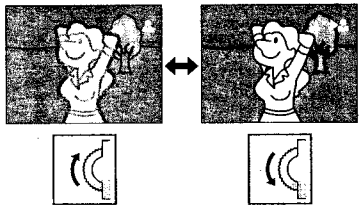
- *To return to the factory setting, select "AUTO" in step **4**.*
- *To re-adjust exposure, repeat the procedure from step **2**.*



NOTES:

- *If the lens is smeared or blurred, accurate focusing is not possible. Keep the lens clean, wiping with a piece of soft cloth if it gets dirty. When condensation occurs, wipe with a soft cloth or wait for it to dry naturally.*
- *When shooting a subject close to the lens, zoom out first (☞ pg. 18). If zoomed in in the auto focus mode, the camcorder could automatically zoom out depending on the distance between the camcorder and the subject. This does not occur with "TELE MACRO" (☞ pg. 24).*





Focusing

AUTO FOCUS

The camcorder's Full Range AF system offers continuous shooting ability from close-up to infinity. However, correct focus may not be obtainable in the situations listed below (in these cases use manual focusing):

- When two subjects overlap in the same scene.
- When illumination is low.*
- When the subject has no contrast (difference in brightness and darkness), such as a flat, one-color wall, or a clear, blue sky.*
- When a dark object is barely visible in the viewfinder.*
- When the scene contains minute patterns or identical patterns that are regularly repeated.
- When the scene is affected by sunbeams or light reflecting off the surface of a body of water.
- When shooting a scene with a high-contrast background.

* The low-contrast warning "▲▲" appears

MANUAL FOCUS

You should already have made the necessary viewfinder adjustments (☞ pg. 15).

1. Set the Power Switch to "PRO.".
2. Press the Select Wheel to display the Menu Screen.
3. Rotate the Select Wheel to move the highlight bar to "FOCUS" and press it. The FOCUS Menu appears.
4. Rotate the Select Wheel to move the highlight bar to "MANU", then press it. The Menu Screen disappears and "▲" and "▲" appear. The focus is locked at this point.
5. To focus on a farther subject, rotate the Select Wheel upward. "◀" appears and blinks.
   To focus on a nearer subject, rotate the Select Wheel downward. "▶" appears and blinks.
6. Press the Select Wheel. The setting is complete. The Menu Screen reappears with the highlight bar on "RETURN".
7. Press the Select Wheel. The Menu Screen disppears and "▲▲" reappears to indicate the focus is locked.

NOTES:

- *To return to Auto Focus, select "AUTO" in step **4**.*
- *To re-adjust Manual Focus, repeat the procedure from step **2**.*
- *Be sure to focus the lens in the maximum telephoto position when you use the Manual Focus mode. If you focus in on a certain subject in the wide-angle position, sharply focused images cannot be obtained when zoomed in because the depth-of-field is reduced at longer focal lengths.*
- *When the focus level cannot be adjusted any farther or closer, "▲" or "▲" will blink.*

White Balance Adjustment

A term that refers to the correctness of color reproduction under various lighting. If the white balance is correct, all other colors will be accurately reproduced.
The white balance is usually adjusted automatically. However, more advanced camcorder operators control this function manually to achieve a more professional color/tint reproduction.

1. Set the Power Switch to "PRO.".
2. Press **MENU**. The Menu Screen appears.
3. Rotate the Select Wheel to move the highlight bar to "M.W.B.", then press it. The Menu Screen disappears and the M.W.B. Menu appears.
4. Rotate the Select Wheel to move the highlight bar to the desired setting.
   "**AUTO**"
   White balance is adjusted automatically (factory preset).
   "☀ : **FINE**"
   Outdoors on a sunny day.
   "⛅ : **CLOUD**"
   Outdoors on a cloudy day.
   "💡 : **HALOGEN**"
   A video light or similar type of lighting is used.
   "**MWB**"
   White balance is set manually.
5. Press the Select Wheel. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Wheel again to close the Menu Screen.

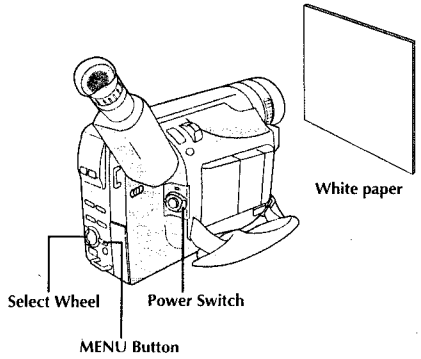
To Return To Automatic White Balance . . .
.... select "AUTO" in step **4**. Or set the Power Switch to "AUTO".

NOTE:
White balance cannot be used when Sepia (☞ pg. 22) is activated.

Manual White Balance Operation

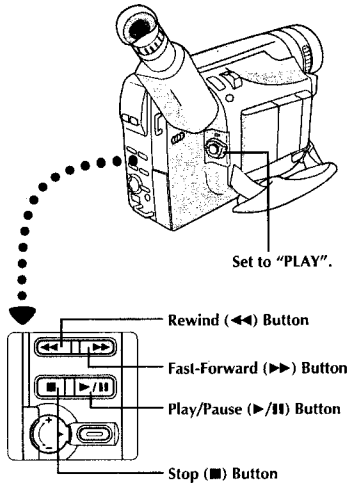
Perform Manual White Balance when shooting under various types of lighting.

1. Follow steps **1** through **4** of the white balance adjustment, and select "MWB".
2. Hold a sheet of plain white paper in front of the subject. Adjust zoom or position yourself so that the white paper fills the screen.
3. Press the Select Wheel until "MWB" begins blinking.
   When the setting is completed, "MWB" stops blinking, and the Menu Screen reappears with the highlight bar on "RETURN".
4. Press the Select Wheel again to close the Menu Screen.



To Change The Tint For Recording . . .
.... in step **2**, substitute colored paper for white. The white balance is adjusted based on the color, changing the tint. Red paper = deeper green; blue paper = orange; yellow paper = deeper purple.

NOTES:
- *In step **2**, it may be difficult to focus on the white paper. In such a case, adjust focus manually (☞ pg. 29).*
- *A subject can be shot under various types of lighting conditions indoors (natural, flourescent, candlelight, etc.). Because the color temperature is different depending on the light source, the subject tint will differ depending on the white balance settings. Use this function for a more natural result.*
- *Once you adjust white balance manually, the setting is retained even if the power is turned off or the battery removed.*

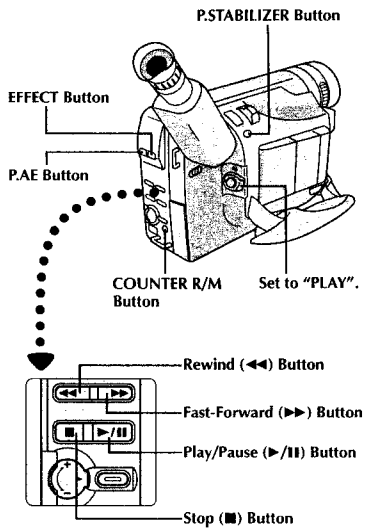


1. Load a tape (☞ pg. 10).
2. Set the Power Switch to "PLAY". To start playback, press ▶/II.
   • To stop playback, press ■.
   • Press ◀◀ to rewind, or ▶▶ to fast-forward the tape during Stop mode.

NOTES:
- *The camcorder shuts off automatically after about 5 minutes in Stop mode. To turn on again, set the Power Switch to "OFF", then to "PLAY".*
- *The playback picture can be viewed in the viewfinder or on a connected TV (☞ pg. 34, 35).*
- *If a blank portion on the tape is played back, the screen may become black. This is not a malfunction.*

Still Playback: Pauses during playback.
1) Press ▶/II during playback.
2) To resume normal playback, press ▶/II again.
- *Noise bars will appear and the picture will become monochrome during Still Playback.*

Shuttle Search: Allows high-speed search in either direction.
1) Press ▶▶ for forward or ◀◀ for reverse search during playback.
2) To resume normal playback, press ▶/II.
- *During playback, press and hold ◀◀ or ▶▶. The search continues as long as you hold the button. Once you release it, normal playback resumes.*
- *Noise bars appear and pictures may become monochrome or darken during Shuttle Search. This is normal.*



Tracking: Eliminates noise bars that appear on-screen during playback. Factory-preset is Auto Tracking.
To activate Manual Tracking:

1) Press **P.AE** and **EFFECT** simultaneously. "MT" appears.
2) Press **P.AE** or **EFFECT** as many times as necessary until the noise bars disappear.

- *To return to Auto Tracking, press **P.AE** and **EFFECT** simultaneously. "AT" blinks. When Auto Tracking finishes, the indication disappears.*
- *When noise bars appear during playback, the camcorder enters the Auto Tracking mode and "AT" is displayed.*
- *Manual Tracking may not work with tapes recorded on other VCRs or camcorders.*

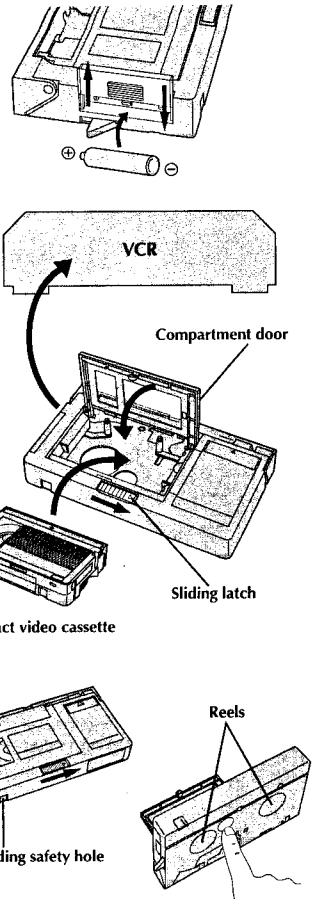
TBC (Time Base Corrector): Removes jitter from fluctuating video signals to deliver a stable picture even with old tapes. Factory-preset: TBC is engaged.
To activate/release the TBC mode, press **P.STABILIZER** during playback for more than 1 second. When the TBC mode is activated, "TBC" is displayed.

- *The "TBC" indicator turns green (gray with a camcorder equipped with a black/white viewfinder) while TBC is working.*
- *TBC does not work during still playback and shuttle search.*
- *The "TBC" indicator turns white while TBC is not operative.*
- *It may take a few seconds before TBC actually starts working.*
- *The picture may be distorted if the TBC mode is activated or deactivated at the edit-in/-out points or when normal playback resumes after still playback or shuttle search.*
- *If the playback picture is distorted when TBC is set to on, turn off TBC.*

Counter Memory Function: Makes it easier to locate a specific tape segment.

1) Press **COUNTER R/M** and hold for more than 1 second. The counter resets to "0:00:00".
2) Press **COUNTER R/M** for less than 1 second. "M" appears.
3) After recording or playback, press ■, then ◀◀. The tape automatically stops at or close to 0:00:00.
4) Press ▶/II to start playback.

- *The counter memory functions in the Fast-Forward and Rewind modes.*
- *To disable the Counter Memory Function, press **COUNTER R/M** for less than 1 second so that "M" disappears.*



Cassette Adapter (VHS Playpak)

Use this to play back an S-VHS-C/VHS-C video cassette recorded with this camcorder on a VHS VCR. It is fully compatible with any S-VHS/VHS video cassette recorder. The C-P7U adapter is battery powered and automatically performs tape loading and unloading.

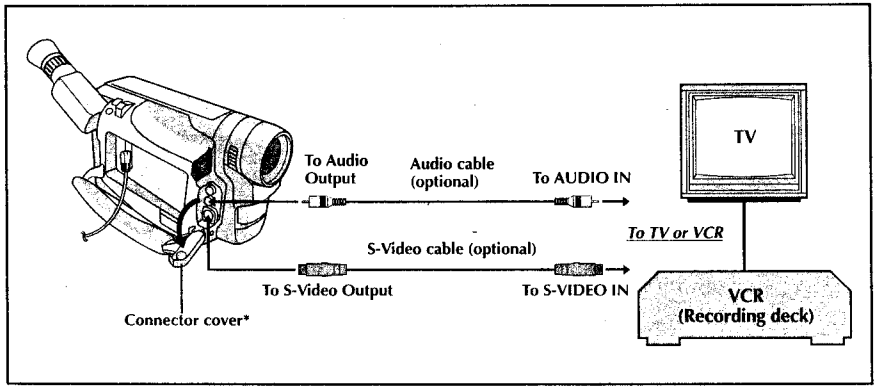
1. Slide the battery cover up to remove it, install one "AA (R6)" size battery as shown, then reattach the cover.
2. Slide the latch to open the adapter compartment door, then insert the cassette and close the compartment door.
3. Load the cassette adapter into the VCR and play the tape back as you would any other.
4. Slide the latch and the compartment door opens automatically. This may take around 10 seconds. Do not attempt to force the adapter open. Then, insert your finger in the hole on the underside of the adapter as shown in the illustration at left, and push up and remove the cassette.

NOTES:

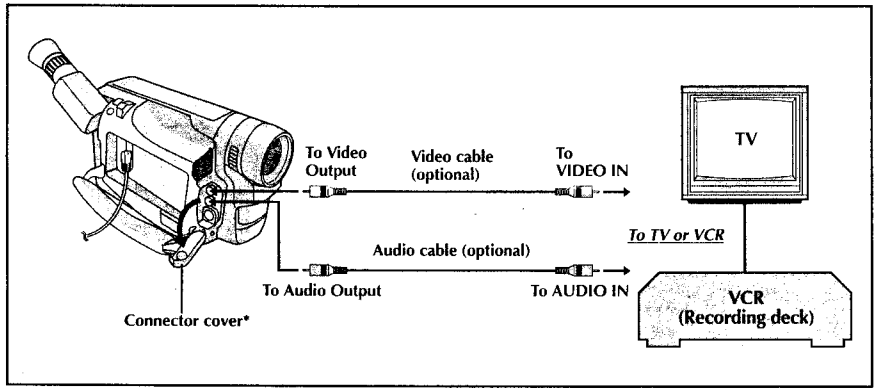
- *During tape loading and unloading, do not touch the reels for safety and tape protection.*
- *Tapes recorded in S-VHS or S-VHS ET mode cannot be played back on a regular VHS VCR. Playback is possible with a VCR equipped with the S-VHS or SQPB (S-VHS QUASI PLAYBACK) function.*
- *During special-effect playback (slow motion, still frame, etc.), the picture may vibrate or noise bars may appear on the screen.*
- *To record on a VCR using a compact cassette and the adapter, cover the adapter's recording safety hole with adhesive tape.*

These are some basic types of connections. When making connections, refer also to your VCR and TV instruction manuals.

A. Connection to a TV or VCR equipped with an S-VIDEO IN and A/V input connectors



B. Connection to a TV or VCR equipped only with A/V input connectors



* When connecting the cables, open this cover.

Basic Connections

1. Make sure all units are turned off.
2. Connect the camcorder to a TV or VCR as shown in the illustration (☞ pg. 34).
   If using a VCR . . . go to step 3.
   If not . . . go to step 4.
3. Connect the VCR output to the TV input, referring to your VCR's instruction manual.
4. Turn on the camcorder, the VCR and the TV.
5. Set the VCR to its AUX input mode, and set the TV to its VIDEO mode.

NOTES:

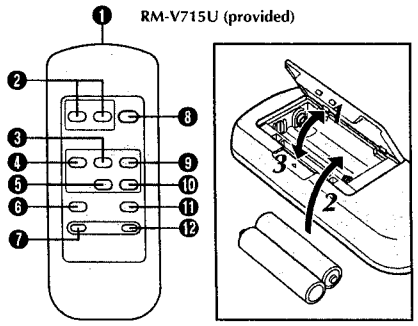
- ***It is recommended to use the AC Power Adapter/ Charger as the power supply instead of the battery pack (☞ pg. 9).***
- *If your VCR has an S-Video input connector, connect the camcorder and the VCR using an optional S-Video cable. This can improve the dubbed picture quality.*
- *To monitor the picture and sound from the camcorder without inserting a tape, set the camcorder's Power Switch to "CAMERA" ("AUTO" or "PRO."), then set your TV to the appropriate input mode.*
- *Make sure you adjust the TV sound volume to its minimum level to avoid a sudden burst of sound when the camcorder is turned on.*
- *If you have a TV or speakers that are not specially shielded, do not place the speakers adjacent to the TV as interference will occur in the camcorder playback picture.*

Tape Dubbing

1. Following the illustration on pg. 34, connect the camcorder and the VCR.
2. Set the camcorder's Power Switch to "PLAY", turn on the VCR's power, and insert the appropriate cassettes in the camcorder and the VCR.
3. Engage the VCR's AUX and Record-Pause modes.
4. Engage the camcorder's Play mode to find a spot just before the edit-in point. Once it is reached, press ▶/❚❚ on the camcorder.
5. Press ▶/❚❚ on the camcorder and engage the VCR's Record mode.
6. Engage the VCR's Record-Pause mode and press ▶/❚❚ on the camcorder.
7. Repeat steps **4** through **6** for additional editing, then stop the VCR and camcorder when finished.

USING THE REMOTE CONTROL UNIT

The Full-Function Remote Control Unit can operate this camcorder from a distance as well as the basic operations (Playback, Stop, Pause, Fast-Forward and Rewind) of your VCR.



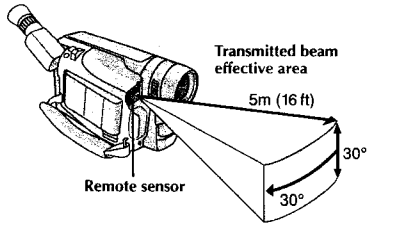
Installing The Batteries

The remote control uses two "AAA (R03)" size batteries. See "General Battery Precautions" (☞ pg. 46).

1 Open the battery compartment cover as illustrated.

2 Insert two "AAA (R03)" size batteries in the correct direction.

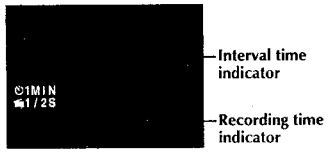
3 Replace the battery compartment cover.

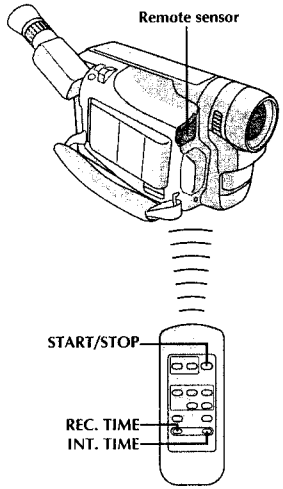


When using the remote control, be sure to point it at the remote sensor. The illustration shows the approximate transmitted beam effective area for indoor use.
The transmitted beam may not be effective or may cause incorrect operation outdoors or when the remote sensor is directly exposed to sunlight or powerful lighting.

Buttons	Functions	
	With the camcorder's Power Switch set to "CAMERA" ("AUTO" or "PRO.").	**With the camcorder's Power Switch set to "PLAY".**
❶ **Infrared beam transmitting window**	Transmits the beam signal.	
❷ **ZOOM (T/W) Buttons**	Zoom in/out (☞ pg. 18)	—
❸ **PLAY Button**	—	Playback start (☞ pg. 31)
❹ **REW Button**	Retake (rewind), Quick Review (☞ pg. 19)	Rewind, Reverse Shuttle Search (☞ pg. 31)
❺ **STOP Button**	—	Stop (☞ pg. 31)
❻ **INSERT Button**	—	Insert Editing (☞ pg. 38)
❼ **REC TIME Button ANIM. Button**	Animation, Time-Lapse (☞ pg. 37)	—
❽ **START/STOP Button**	Functions the same as the Recording Start/Stop Button on the camcorder.	
❾ **FF Button**	Retake (forward) (☞ pg. 19)	Fast-Forward, Forward Shuttle Search (☞ pg. 31)
❿ **PAUSE Button**	—	Pause (☞ pg. 31)
⓫ ***A.DUB Button***		Audio dubbing (☞ pg. 39)
⓬ **INT. TIME Button** ***SELF TIMER Button****	Time-Lapse (☞ pg. 37)	—

*This function is unavailable with this camcorder.





FEATURE: Animation and Time-Lapse

PURPOSE:

The remote control lets you set/release Interval Time and Recording Time without using the Menu Screen.

OPERATION:

Animation

1) Set

Instead of performing steps **1** and **2** on pg. 27 ("Animation"), press **REC TIME** on the remote control. Each time **REC TIME** is pressed, the Recording Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and no indication (off).

2) Release

Instead of using the Menu in step **5** on pg. 27, press **REC TIME** on the remote control until the Recording Time indicator disappears.

Time-Lapse

1) Set

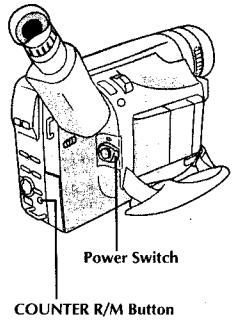
Instead of performing steps **1** through **3** on pg. 27 ("Time-Lapse"), press **INT. TIME** and **REC TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Time indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and no indication (off). Each time **REC TIME** is pressed, the Recording Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and no indication (off).

2) Release

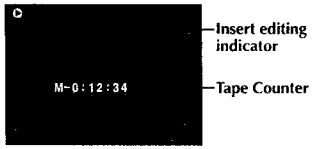
Instead of using the Menu in step **5** on pg. 27, press **INT. TIME** and **REC TIME** on the remote control until the indicators disappear.

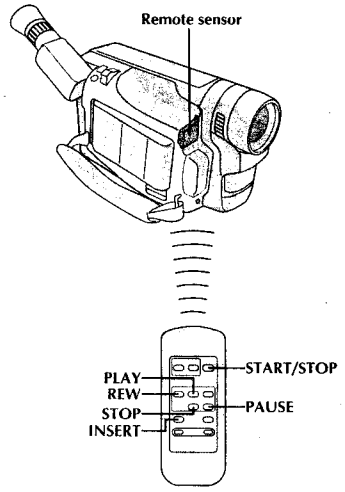
NOTE:

Also refer to page 27.



Display





RM-V715U (provided)

Insert Editing

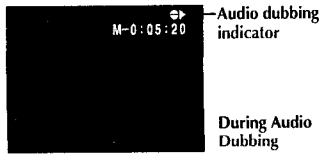
You can record a new scene onto a previously recorded tape, replacing a section of the original recording with minimal picture distortion at the in- and out-points. The original audio remains unchanged.

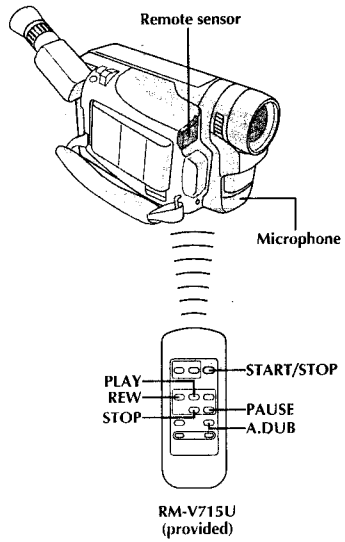
NOTE:
Use the RM-V715U remote control unit to perform this procedure.

1. Set the Power Switch to "PLAY".
2. Play back the tape, locate the Edit-Out point and press **PAUSE**.
3. Press and hold **COUNTER R/M** on the camcorder for more than 1 second to reset the tape counter, then press again for less than 1 second so that "M" appears.
4. Press **REW** to go a little beyond the beginning of the scene you want to replace, press **PLAY** to view the recorded tape, and press **PAUSE** exactly at the Edit-In point where the new scene should start.
5. Press and hold **INSERT**, and without releasing **INSERT**, press and release **PAUSE**. The Insert Editing indicator appears and the Insert Editing mode is engaged. When the scene the camcorder is aimed at appears on the screen, go to the next step.
6. To begin Insert Editing, press **START/STOP**. When the counter reaches "0:00:00", editing stops automatically and the camcorder enters the Insert-Pause mode.
7. To end Insert Editing, press **STOP**.

NOTES:
- *During Insert Editing, the original audio will be heard from the speaker.*
- *After step 5, Retake (☞ pg. 19) can be performed.*
- *The tape may stop slightly before or after the designated end point, and noise bars may appear. Neither indicates a defect in the unit.*
- *Only the video signal is recorded in the Insert Editing mode.*

Display





RM-V715U (provided)

Audio Dubbing

You can record a new soundtrack on a prerecorded tape (normal audio only). The sound is recorded from the built-in microphone.
Perform steps 1, 2 and 3 of the Insert Editing procedure (☞ pg. 38) before continuing.

NOTE:
Use the RM-V715U remote control unit to perform the following procedures.

1. Press **REW** to go a little beyond the beginning of the scene onto which you want to dub the new audio, press **PLAY** to view the recorded tape, then press **PAUSE** at exactly the point where dubbing should start.
2. Press and hold **A. DUB**, and without releasing **A. DUB**, press and release **PAUSE**. The Audio Dub-Standby mode is engaged.
3. To begin Audio Dubbing, press **PLAY**. When the counter reaches "0:00:00", Audio Dubbing stops automatically and the camcorder enters the Audio Dub-Standby mode.
4. To end Audio Dubbing, press **STOP**.

NOTES:
- *Do not press **FF** or **REW** during Audio Dub-Standby, or the edit points will not be accurate.*
- *If the microphone is too close to the TV, or if the TV's volume is too high, whistling or howling may occur.*

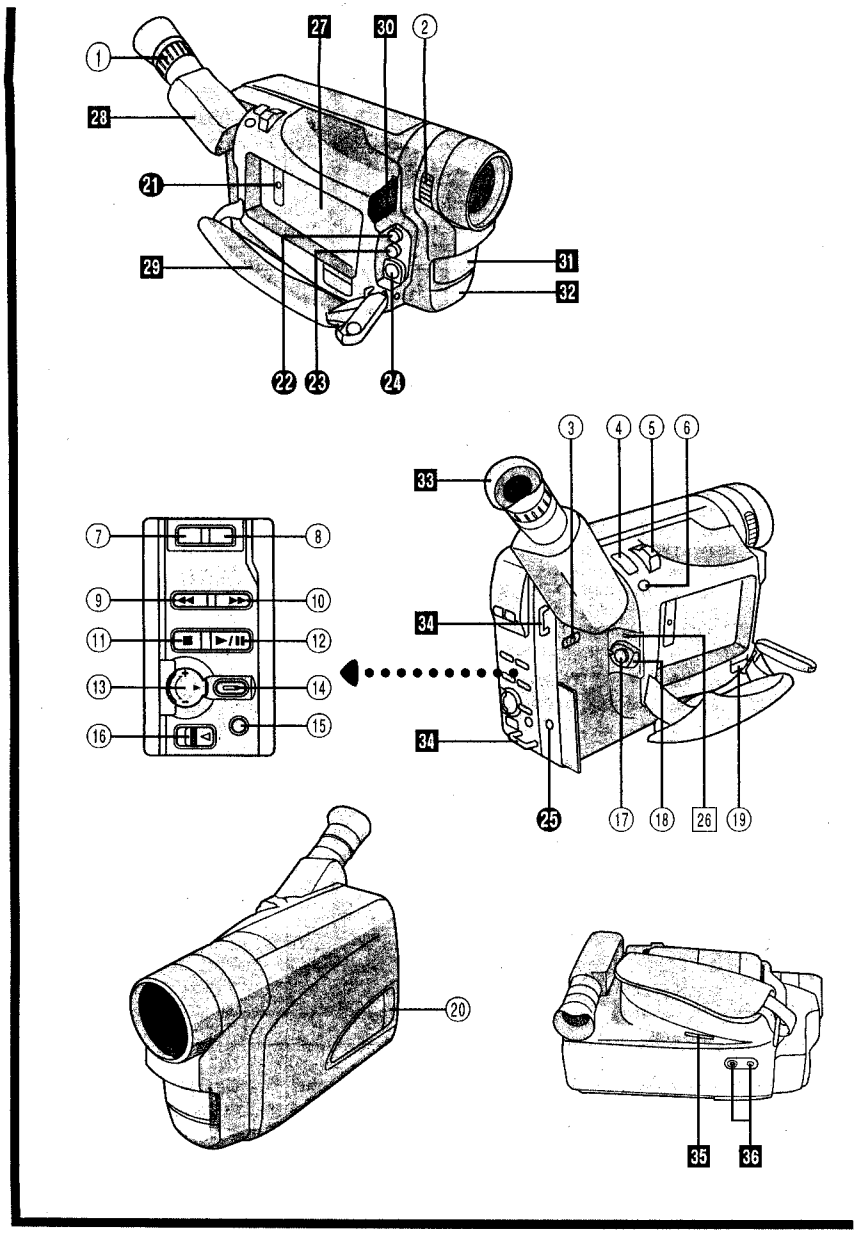
NOTES (for Insert Editing and Audio Dubbing):
- *Insert Editing and Audio Dubbing may not work correctly if the tape contains blank segments, or if the recording speed was changed during the original recording.*
- *To edit/dub onto a tape, make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *Do not press **STOP** during Insert Editing or Audio Dubbing, or the edit points will not be accurate.*
- *During Insert Editing and Audio Dubbing, when Insert-Pause or Audio Dub-Standby is engaged, the counter may go slightly past "0:00:00". Recording, however, stops at exactly 0:00:00.*

If, after following the steps in the chart below, the problem still exists, please consult your JVC dealer.

The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.) and clock battery; and then re-connect it and proceed as usual from the beginning.

SYMPTOM	POSSIBLE CAUSE(S)
POWER	
No power is supplied.	• The battery pack has not been attached correctly (☞ pg. 8). • The battery pack is not charged (☞ pg. 8). • The power supply has not been correctly connected (☞ pg. 9).
The power suddenly goes off and does not come back on by itself.	• The battery pack has completely discharged. • Remove the cassette and disconnect the power source, then after a few minutes, try turning the power back on. If it still does not come on, consult your nearest JVC dealer.
RECORDING	
Recording cannot be performed.	• Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape (☞ pg. 10).
Recording does not start.	• The camcorder Power Switch has not been set to "CAMERA" ("AUTO" or "PRO".) (☞ pg. 16).
Animation or Time-Lapse is not available.	• Before recording in the Animation mode at the very beginning of a tape, set the camcorder to the Recording mode for about 5 seconds, so that the tape runs smoothly. Using the Fade-in function at this point is a good way to begin an animated program (☞ pg. 27, 37).
PLAYBACK	
The tape is running, but there is no playback picture.	• The TV has not been set to its VIDEO mode or channel. • If A/V connection is used, the TV's VIDEO/TV Switch has not been set to VIDEO.
Playback picture is blurred or interrupted.	• The video heads are dirty or worn out. Consult your nearest JVC dealer for head cleaning or replacement.
The counter indication is blurred during Still playback.	• This is normal.
TAPE TRANSPORT	
The tape stops during fast-forward or rewind.	• The Counter Memory Function has been activated (☞ pg. 32).
Rewinding or fast-forwarding cannot be performed.	• The tape is already fully wound on one reel or the other.

SYMPTOM	POSSIBLE CAUSE(S)
OTHER	
During recording, the indications do not appear.	• Press **DISPLAY** for longer than 1 second to make the indications appear (☞ pg. 17).
The tape will not eject.	• The battery pack is running low.
Some functions are not available.	• The Power Switch is set to "AUTO". • Certain combinations of modes or effects are not possible to use.
Vertical white lines appear when shooting a very bright object.	• This sometimes occurs when the contrast between the background and the object is great. It is not a defect of the camcorder.
The picture is blurred in the Quick Review or Retake mode.	• This is normal while recording in the EP mode. Some noise may be present while recording in the SP mode (☞ pg. 12).
An error number (i.e. E03) appears.	• Turn the camcorder's power off, then disconnect the power source. After a few minutes, try turning the power on again. If the error number still appears in the viewfinder, consult your nearest JVC dealer.
The image is out of focus.	• The diopter needs to be adjusted (☞ pg. 15). • The scene being shot is adversely affecting the operation of Auto Focus (☞ pg. 29).
The date and time displays disappear.	• If you remove the power source from the camcorder while the power is on, all settings and selections are erased. Make sure to turn the camcorder's power off before disconnecting the power source.
The wrong date and time are displayed/recorded.	• If you have not performed Date/Time Setting (☞ pg. 11), the date and time are not displayed/recorded correctly. Be sure that Date/Time setting is carried out.
Even though the lens cover is open, the Lens Cover Warning indicator blinks.	• The Lens Cover Warning indicator may blink when the camcorder is used in dark areas, regardless of the position of the lens cover.



Controls

① Diopter Adjustment Control ☞ pg. 15
② Lens Cover Open/Close Ring ☞ pg. 16
③ Video Light Switch [LIGHT OFF/AUTO/ON] ☞ pg. 20
④ 5-Second Recording Button [5 SEC. REC] ☞ pg. 19
⑤ Power Zoom Lever [T/W] ☞ pg. 18
⑥ • Picture Stabilizer Button [P.STABILIZER] ☞ pg. 18
• Time Base Corrector Button ☞ pg. 32
⑦ Program AE Button [P.AE] ☞ pg. 22
⑧ Fade/Wipe Button [EFFECT] ☞ pg. 21
⑨ • Retake Rewind Button [RETAKE R] ☞ pg. 19
• Quick Review Button [R] ☞ pg. 19
• Rewind Button [REW] ☞ pg. 31
⑩ • Retake Forward Button [RETAKE F] ☞ pg. 19
• Fast-Forward Button [FF] ☞ pg. 31
⑪ Stop Button [STOP] ☞ pg. 31
⑫ Play/Pause Button [PLAY/PAUSE] ☞ pg. 31
⑬ Select Wheel [PUSH] ☞ pg. 23
⑭ MENU/DISPLAY Button ☞ pg. 17, 23
⑮ • Recording Mode Button [SP/EP] ☞ pg. 12
• Counter Reset/Memory Button [COUNTER R/M] ☞ pg. 32
⑯ EJECT Switch ☞ pg. 10
⑰ Recording Start/Stop Button ☞ pg. 16
⑱ Power Switch [PLAY, OFF, AUTO, PRO.] ☞ pg. 16, 31
⑲ Battery Release Switch [BATTERY RELEASE] ☞ pg. 9
⑳ PUSH Button ☞ pg. 10

Connectors

㉑ DC IN Connector ☞ pg. 9

The connectors ㉒ to ㉕ are located beneath the cover.

㉒ Video Output Connector ☞ pg. 34
㉓ Audio Output Connector ☞ pg. 34
㉔ S-Video Output Connector ☞ pg. 34
㉕ J Terminal [JLIP (Joint Level Interface Protocol) Connector]
• It is used to connect the camcorder to a device such as a personal computer. For further details consult your nearest JVC dealer.
• JLIP-controlled editing from camcorder to VCR is not possible if the VCR is not equipped with a J terminal.

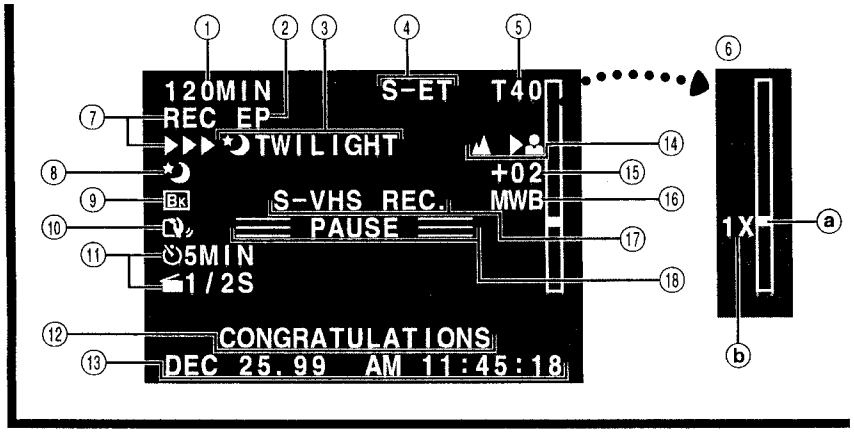
Indicators

26 Power Lamp ☞ pg. 16

Other Parts

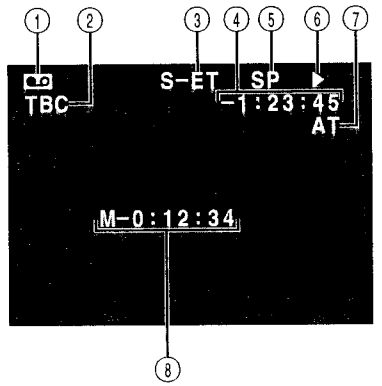
27 Battery Pack Mount ☞ pg. 9
28 Viewfinder ☞ pg. 15
29 Grip Strap ☞ pg. 15
30 • Camera sensor
Be careful not to cover this area; a sensor necessary for shooting is built-in here.
• Remote Sensor ☞ pg. 36
31 Video Light ☞ pg. 20
32 Microphone ☞ pg. 39
33 Eyepiece ☞ pg. 50
34 Shoulder Strap Eyelets ☞ pg. 15
35 Clock Battery Slot ☞ pg. 10
36 Tripod Mounting Socket ☞ pg. 15

Indications During Recording



① Tape Remaining Time ..... ☞ pg. 17
Blinks when a tape is about to reach its end.
② Recording Mode Indicator (SP/EP) ..... ☞ pg. 12
③,⑧ Program AE Indicator ..... ☞ pg. 22
Displayed at ③ for approx. 2 seconds when Program AE with special effects is switched from one mode to another by pressing **P.AE.**, then only the indicator remains at ⑧.
③,⑨ Fade/Wipe-Standby Indicator ..... ☞ pg. 21
Displayed at ③ for approx. 2 seconds when the Fade/Wipe is switched from one effect to another by pressing **EFFECT**, then only the indicator remains at ⑨.
④ Recording Format Indicator (S/S-ET) ..... ☞ pg. 13
⑤ Tape Length Indicator ..... ☞ pg. 12
⑥ Zoom Indicator Bar ..... ☞ pg. 18
ⓐ Zoom Level Indicator
ⓑ Approximate Zoom Ratio
⑦ Recording Indicator ..... ☞ pg. 16
⑩ Picture Stabilizer Indicator ..... ☞ pg. 18
⑪ • Interval Timer/Recording Time Indicator ..... ☞ pg. 27
• 5 Sec. Rec Mode Indicator ..... ☞ pg. 19
⑫ Instant Title Display ..... ☞ pg. 26
⑬ Date/Time Display ..... ☞ pg. 26
⑭ Focus Indicator ..... ☞ pg. 29
⑮ Exposure Control Level Counter ..... ☞ pg. 28
⑯ White Balance Mode Indicator ..... ☞ pg. 30
⑰ S-VHS/S-VHS ET Recording Indicator ... ☞ pg. 13
⑱ Record–Standby Mode Indicator ..... ☞ pg. 16

Indications During Playback



① • : Cassette Indicator
Displayed when a tape is loaded.
• : Insert Editing Indicator ..... ☞ pg. 38
Displayed during Insert Editing.
② TBC Indicator ..... ☞ pg. 32
③ Recording Format Indicator (S/S-ET) ..... ☞ pg. 13
④ Tape Counter ..... ☞ pg. 32, 38
⑤ Recording Mode Indicator (SP/EP) ..... ☞ pg. 12
⑥ Tape Running Indicator
▶ : Playback
▶▶ : Fast-Forward/Shuttle Search
◀◀ : Rewind/Shuttle Search
❚❚ : Pause
●▶ : Audio Dubbing
⑦ Tracking Indicator ..... ☞ pg. 32
⑧ Tape Counter ..... ☞ pg. 38
Displayed only during Insert Editing.

Warning Indications

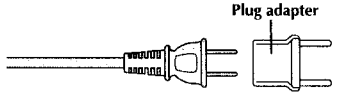
Indications	Function
	Displays the battery remaining power. Remaining power level: high. It does not necessarily mean that the battery pack is fully charged. Remaining power level: exhausted As the battery power comes close to nil, the battery indicator blinks (battery power warning). When the battery power is exhausted, power turns off automatically.
	Blinks when no cassette is loaded, or when the Erase Protection tab is not in the position that allows recording. (☞ pg. 10)
	Blinks for approx. 10 seconds when the power is turned on. This display also blinks when the clock (lithium) battery is either not installed or has discharged. Install or replace the old battery with a new one. (☞ pg. 10)
TAPE END	Appears when the tape ends during recording, playback or fast-forward. (☞ pg. 17)
LENS COVER	Blinks for approx. 5 seconds when the camcorder is turned on with the lens cover closed. (☞ pg. 16)
CONDENSATION PLEASE WAIT	These 2 warnings appear alternately every 3 seconds if condensation occurs. In this case, all functions except tape eject and power on/off are disabled. Turn the unit off (without removing the power supply), wait a few minutes for the warnings to clear, and turn it on again.
TAPE HEAD IS DIRTY USE CLEANING CASSETTE	These 2 warnings appear alternately every 3 seconds if dirt is detected on the heads during recording. In this case, use an optional cleaning cassette. If the warning remains after cleaning, consult your nearest JVC dealer.
E01 — E06 SAFEGUARD FUNCTION HAS BEEN ACTIVATED REATTACH BATTERY	The error indications (E01 — E06) show what type of malfunction has occured. If an error indication and warning appear, turn the unit off, remove the power supply (battery, etc.) and wait a few minutes for them to clear. When it does, you can resume using the camcorder. If the indication remains, consult your nearest JVC dealer.

When using the AC Power Adapter/Charger in areas other than the USA

■ The provided AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.

USING HOUSEHOLD AC PLUG ADAPTER

In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown.
For this AC plug adapter, consult your nearest JVC dealer.



INFORMATION

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Change or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Video Light

DANGER:

- The video light becomes extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm (11-13/16" ft.) between the video light and people or object.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

General Battery Precautions

If the remote control or cassette adapter is not functioning even if it is being operated correctly, the batteries are exhausted. Replace them with fresh ones.

Use only the following batteries:

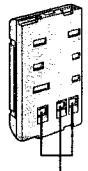
Remote control ..... AAA (R03) size x 2 (RM-V715U)
Cassette adapter ..... AA (R6) size x 1 (C-P6U or C-P7U)

Please make note of the following rules for battery use. When misused, the batteries can leak or explode.

1. When replacing batteries, refer to page 36 for the remote control, or read the cassette adapter (C-P6U/C-P7U) instructions.
2. **Do not** use any different size of batteries from those specified.
3. Be sure to install batteries in the correct direction.
4. **Do not** use rechargeable batteries.
5. **Do not** expose the batteries to excessive heat as they can leak or explode.
6. **Do not** dispose of the batteries in a fire.
7. Remove the batteries from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

Battery Packs

The battery packs are nickel-cadmium or nickel metal-hydride batteries.
Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:



1. To avoid hazard . . .
.... **do not** burn.
.... **do not** short-circuit the terminals.
.... **do not** modify or disassemble.
.... use only specified chargers.

2. To prevent damage and prolong service life . . .
.... **do not** subject to unnecessary shock.
.... avoid repeated charging without fully discharging.
.... charge in an environment where temperatures are within the tolerances shown in the chart below. This is a chemical reaction type battery—cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
.... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
.... avoid prolonged uncharged storage.
.... remove from charger or powered unit when not in use, as some machines use current even when switched off.

NOTES:

- *It is normal for the battery pack to be warm after charging, or after use.*
  Temperature Range Specifications
  Charging ..... 10°C to 35°C (50°F to 95°F)
  Operation ..... 0°C to 40°C (32°F to 104°F)
  Storage ..... –10°C to 30°C (14°F to 86°F)
- *Recharging time is based on room temperature of 20°C (68°F.)*
- *The lower the temperature, the longer recharging takes.*

Cassettes

To properly use and store your cassettes, be sure to read the following cautions:

1. During use . . .
.... make sure the cassette bears the VHS-C mark.
.... be aware that recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
.... make sure the cassette is positioned properly when inserting.
.... do not load and unload the cassette repeatedly without allowing the tape to run at all. This slackens the tape and can result in damage.
.... do not open the front tape cover. This exposes the tape to fingerprints and dust.

2. Store cassettes . . .
.... away from heaters or other heat sources.
.... out of direct sunlight.
.... where they won't be subject to unnecessary shock or vibration.
.... where they won't be exposed to strong magnetic fields (such as those generated by motors, transformers or magnets).
.... vertically, in their original cases.

Main Unit

1. For safety, DO NOT . . .
.... open the camcorder's chassis.
.... disassemble or modify the unit.
.... short-circuit the terminals of the battery pack. Keep it away from metallic objects when not in use.
.... allow inflammables, water or metallic objects to enter the unit.
.... remove the battery pack or disconnect the power supply while the power is on.
.... leave the battery pack attached when the camcorder is not in use.

2. Avoid using the unit . . .
.... in places subject to excessive humidity or dust.
.... in places subject to soot or steam such as near a cooking stove.
.... in places subject to excessive shock or vibration.
.... near a television set.
.... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
.... in places subject to extremely high (over 40°C or 104°F) or extremely low (under 0°C or 32°F) temperatures.

3. DO NOT leave the unit . . .
.... in places of over 50°C (122°F).
.... in places where humidity is extremely low. (below 35%) or extremely high (above 80%).
.... in direct sunlight.
.... in a closed car in summer.
.... near a heater.

4. To protect the unit, DO NOT . . .
.... allow it to become wet.
.... drop the unit or strike it against hard objects.
.... subject it to shock or excessive vibration during transportation.
.... keep the lens directed at extremely bright objects for long periods.
.... direct the eyepiece of the viewfinder at the sun.
.... carry it by holding the viewfinder. Be sure to hold the main unit with both hands or use the grip.
.... swing it excessively when using the shoulder strap.

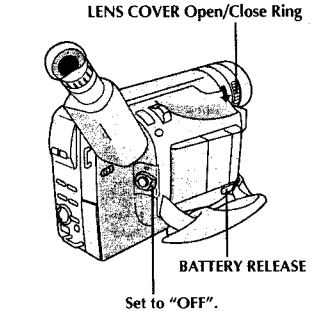
About moisture condensation . . .

- You may have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass' outer surface. This same phenomenon occurs on the head drum of a camcorder when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the camcorder itself.

Serious malfunctioning

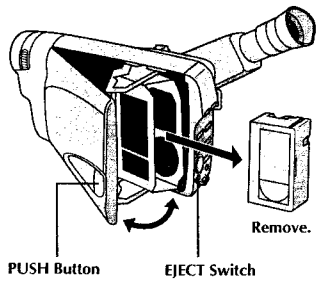
If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

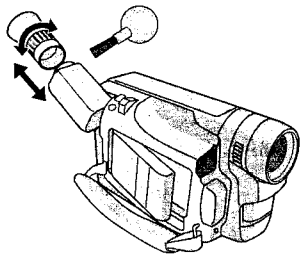
USER MAINTENANCE



After Use

1. Turn off the camcorder.
2. Slide **EJECT** to open the cassette holder, then remove the cassette.
3. Press **PUSH** to close and lock the cassette holder.
4. Slide **BATTERY RELEASE** to remove the battery pack.
5. Turn the **LENS COVER** Open/Close Ring to close the lens cover.





Cleaning The Camcorder

1. To clean the exterior, wipe gently with a soft cloth. Put the cloth in diluted mild soap and wring it well to wipe off heavy dirt. Then wipe again with a dry cloth.
2. To clean the lens, blow it with a blower brush, then wipe gently with lens cleaning paper.
3. To detach the eyepiece, turn it counterclockwise and pull it out.
4. Remove dust from the viewfinder using a blower brush.
5. Re-attach the eyepiece and turn it clockwise.

NOTES:

- *Avoid using strong cleaning agents such as benzine or alcohol.*
- *Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.*
- *Mold may form if the lens is left dirty.*
- *When using a cleaner or chemically treated cloth refer to the cautions of each product.*
- *When removing the eyepiece, be sure to hold the viewfinder securely.*

SPECIFICATIONS

Camcorder

General

Format	: VHS NTSC standard
Power source	: DC 6.0 V ⎓
Power consumption	
Light off	: 3.6 W
Light on	: 6.6 W
Signal system	: NTSC-type
Video recording system	
Luminance	: FM recording
Color	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: S-VHS / VHS cassette
Tape speed	
SP	: 33.35 mm/sec. (1-5/16 ips)
EP	: 11.12 mm/sec. (7/16 ips)
Recording time (max.)	
SP	: 40 minutes
EP	: 120 minutes (with TC-40)
Operating temperature	: 0°C to 40°C (32°F to 104°F)
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to 50°C (–4°F to 122°F)
Weight	: Approx. 730 g (1.6 lbs)
Dimensions	: 198 (W) x 119 (H) x 91 (D) mm (7-13/16" x 4-11/16" x 3-5/8") (with the viewfinder fully tilted downward)
Pickup	: 1/4" format CCD
Lens	: F1.6, f = 3.9 to 62.4 mm, 16:1 power zoom lens with auto iris and macro control, filter diameter 40.5 mm
Viewfinder	: Electronic viewfinder with 0.55" color LCD
White balance adjustment	: Auto/Manual adjustment

Connectors

JLIP	: ø3.5 mm, 4-pole, mini-head jack (compatible with RC-5325 plug)
Video	: 1 Vp-p, 75 Ω unbalanced, analog output (via Video output connector)
Audio	: –8 dBs, 1 kΩ analog output (via Audio output connector)
S-Video	: **Y** : 1 Vp-p, 75 Ω, analog output **C** : 0.29 Vp-p, 75 Ω, analog output

AC Power Adapter/Charger AA-V16U

Power requirement	
U.S.A. and Canada	: AC 120 V~, 60 Hz
Other countries	: AC 110 V to 240 V~, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 125 (W) x 42 (H) x 68 (D) mm (4-15/16" x 1-11/16" x 2-11/16")
Weight	: Approx. 270 g (0.6 lbs)

Cassette Adapter C-P7U

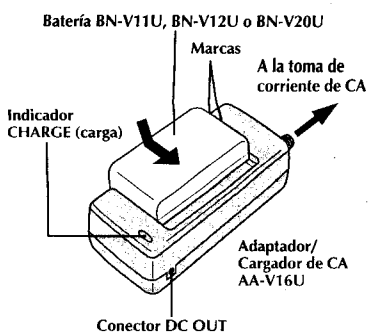
Dimensions	: 188 (W) x 25 (H) x 104 (D) mm (7-7/16" x 1" x 4-1/8")
Weight	: Approx. 240 g (0.53 lbs)
Accessory	: "AA (R6)"-size battery x 1

Optional Accessories

- **Battery Packs BN-V12U, BN-V20U, BN-V856U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Audio/Video Cable**
- **S-Video Cable QAM0004-004**
- **Car Battery Cord AP-V7U**
- **Compact S-VHS (S-VHS) Cassettes ST-C-40/30/20**
- **Compact VHS (VHS) Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**

Some accessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated. E & O.E. Design and specifications subject to change without notice.


Batería BN-V11U, BN-V12U o BN-V20U
Marcas
A la toma de corriente de CA
Indicador CHARGE (carga)
Adaptador/ Cargador de CA AA-V16U
Conector DC OUT

Batería	Tiempo de carga
BN-V11U	aprox. 1 h 10 min
BN-V12U (opcional)	aprox. 1 h 10 min
BN-V20U (opcional)	aprox. 1 h 50 min

Alimentación

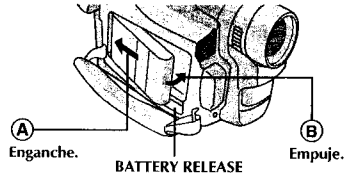
Esta cámara de video posee un sistema de alimentación de 3 vías que le permite seleccionar la fuente de alimentación más apropiada. No utilice las unidades de alimentación suministradas con otro equipo.

CARGA DE LA BATERIA

1. Asegúrese de desconectar el cable CC de la cámara de video del adaptador/cargador de CA. Conecte el cable de alimentación de CA del cargador a una toma de corriente.
2. Alinee las marcas y deslice la batería en la dirección de la flecha hasta que quede bloqueada en su lugar. El indicador CHARGE comienza a destellar para indicar que se ha iniciado la carga.
3. Cuando el indicador CHARGE deja de destellar y permanece encendido, la carga ha terminado. Deslice la batería en el sentido opuesto al de la flecha y retírela. Recuerde de desconectar el cable de alimentación del adaptador/cargador de CA de la toma de corriente alterna.

ATENCION:
La carga de la batería sin que esté completamente agotada afectará a la capacidad original de ésta. Efectué el procedimiento abajo para descargar totalmente la batería antes de recargarla.
1. Coloque la batería en la cámara de video y asegúrese que el cassette esté ***no*** colocado, luego ajuste el conmutador de alimentación en "AUTO" o "PRO.".
2. La alimentación de la camára de video se desconectará automáticamente cuando la descarga termina.

Cuando usted no vaya a usar una batería por un período prolongado, asegúrese de descargarla totalmente antes de almacenarla porque dejar la batería sin que esté completamente agotada afectará su rendimiento.



USO DE LA BATERIA

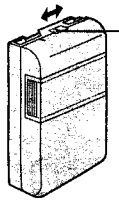
Enganche el extremo a la cámara de video Ⓐ y presione la batería hasta que se trabe en el lugar Ⓑ.
- Si la batería es colocada en la posición equivocada puede ocurrir un mal funcionamiento.

Para la extracción de la batería . . .
..... deslice **BATTERY RELEASE** y extraiga la batería.

Batería	Tiempo de grabación aproximado
BN-V11U	1 h 45 min (50 min)
BN-V12U (opcional)	1 h 45 min (50 min)
BN-V20U (opcional)	2 h 50 min (1 h 30 min)
BN-V856U (opcional)	11 h 10 min (6 h)

( ) : Cuando está encendido el foco.

ATENCION:
Antes de desmontar la fuente de alimentación, asegúrese que la alimentación de la cámara de video esté desconectada. El no hacerlo puede producir un error de funcionamiento en la cámara de video.

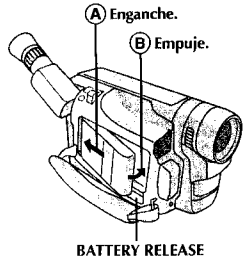


*Se incorpora un indicador de carga sobre la batería para ayudarle a recordar si ha sido cargada o no. Los dos colores indicadores (rojo y negro), le permiten seleccionar la carga y la descarga.

INFORMACION:
El VU-V856KIT es un juego compuesto de la batería BN-V856U y del cargador/adaptador de CA AA-V80U. Lea los manuales de instrucción del VU-V856KITU antes de utilizarlo. Es imposible cargar la batería BN-V856U utilizando el cargador/adaptador de CA suministrado. Use el cargador/adaptador de CA AA-V80U opcional.

Si la unidad comienza a funcionar mal, deje de usarla inmediatamente y consulte a su concesionario local de JVC.

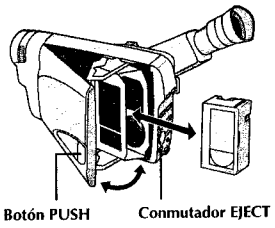
ALIMENTACION



Utilización de la batería
Enganche el lado extremo de la batería en la cámara de video Ⓐ y empuje la batería hasta que se bloquee en el lugar Ⓑ.
(Procedimiento para carga, ☞ p. 8)

Para extraer la batería
Deslice **BATTERY RELEASE** y extraiga la batería.

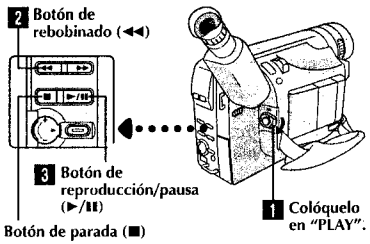
INSERCION DEL CASSETTE DE VIDEO



1. Deslice **EJECT** para abrir el portacassette.
2. Inserte cassette de video.
3. Presione **PUSH** para cerrar el portacassette.

(Por más detalles, ☞ p. 10)

REPRODUCCION



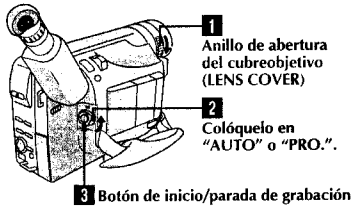
1. Ajuste el conmutador de alimentación en "PLAY".
2. Presione ◀◀.
   — La cinta se detiene automáticamente al comienzo de la misma.
3. Presione ▶/II.
   — Comienza la reproducción y la imagen aparece.

- Presione ■ para detener la grabación.

(Por más detalles, ☞ p. 31.)

O simplemente reproduzca la cinta en un VCR de VHS utilizando el adaptador de cassette (VHS Playpak). ☞ p. 33

FILMACION



1. Gire el anillo **LENS COVER** de abertura/cierre para abrir el cubreobjetivo.
2. Adjuste el conmutador de alimentación en "AUTO" o "PRO.".
   — La lámpara de alimentación se encenderá y aparecerá una imagen.
3. Presione el botón inicio/parada de grabación.
   — Comenzará la grabación.

- Para detener temporariamente la grabación, presione nuevamente el botón de inicio/parada de grabación.

(Por más detalles, ☞ p. 16, 17)

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.
6. Tighten screws properly during the procedures. Unless specified otherwise, tighten screws at torque of 0.2 N·m (2.0 kgf·cm).

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1a), 2(L1b), (L1c) PUSH BUTTON	<NOTE 1>
②	COVER (VF)	C2	2(S2), (L2)	–
③	TOP COVER	C3	2(S3),2(L3a), 2(L3b), 2(L3c)	–

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.
(2) Part to be removed or installed.
(3) Fig. No. showing Procedure or Part Location.
C = Cabinet
CA = Camera
D = Deck
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
2(S3) = 2 Screws (S3)
(5) Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

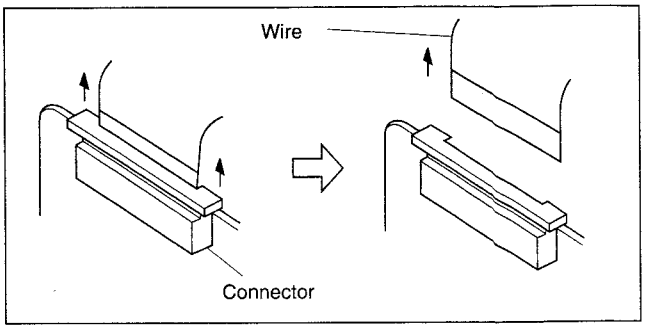
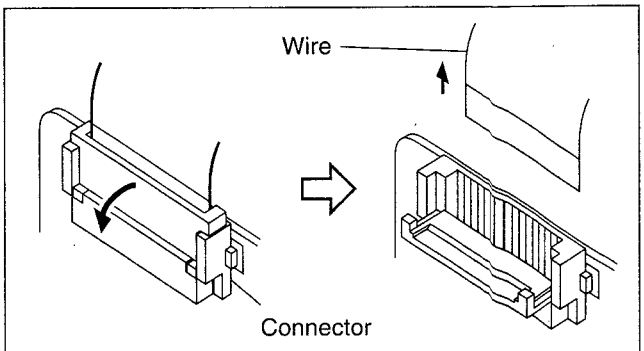


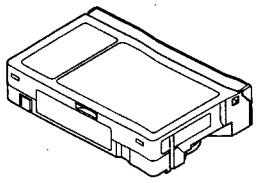
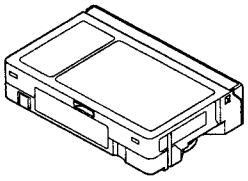
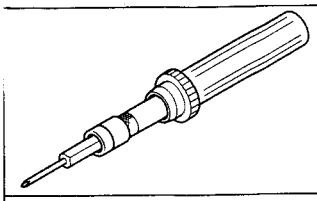
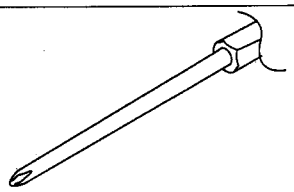
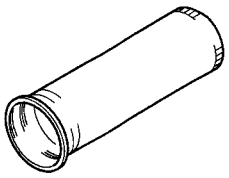
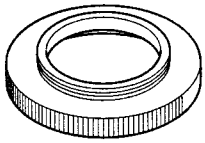
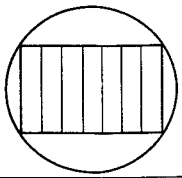
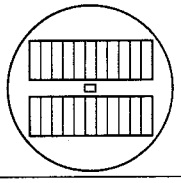
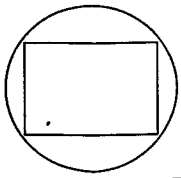
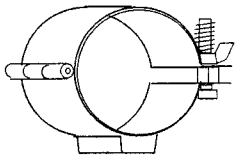
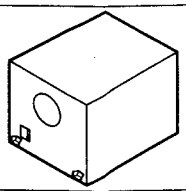
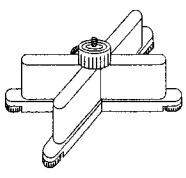
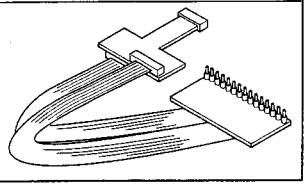
Fig. 1-1-1



NOTE: *After removing the wire, return the stopper to its original position, because it is apt to come off if it is left open.*

Fig. 1-1-2

1.2 TOOLS REQUIRED FOR ADJUSTMENTS

1	Alignment tape (for SP interchangeability) MHP-C	2	Alignment tape (for N. SP PB Y/C level) MHV-2C
			
3	Torque driver YTU94088	4	Bit YTU94088-003
			
5	INF adjustment lens YTU92001B	6	Conn. ring YTU92001-111
			
7	Color bar chart YTU92001-051	8	Gray scale chart YTU92001-052
			
9	White balance chart YTU92001-053	10	INF lens holder YTU94087
			
11	Light box YTU93072A-1	12	Camera stand YTU93079
			
13	Patch cord YTU93097A	14	Jig connector cable YTU93082E
			

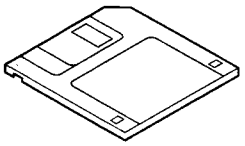
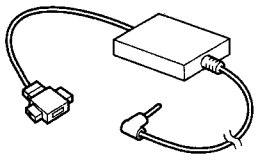
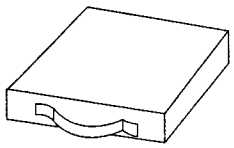
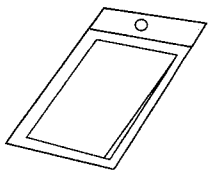
15	Service support software YTU94057-43	16	PC cable QAM0099-002
			
17	Soldering kit YTU96016B	18	Cleaning cloth KSMM-01
			

Table 1-1-1

1,2. Alignment tape
To be used for check and adjustment of interchangeability of the mechanism.
(Video: Color bar signal, Audio: Non-signal)

3. Torque driver
Be sure to use to fastening the mechanism and exterior parts because those parts must strictly be controlled for tightening torque.

4. Bit
This bit is slightly longer than those set in conventional torque drivers.

5. INF adjustment lens
To be used for adjustment of the camera system.

6. Conn. ring
The connector ring to attach the INF. lens to the head of the OP lens.

7. Color bar chart
To be used for adjustment of the camera system.

8. Gray scale chart
To be used for adjustment of the camera system.

9. White balance chart
To be used for adjustment of the camera system. (for white balance adjustment)

10. INF lens holder
To be used together with the camera stand (11) for operating the VideoMovie in the stripped-down condition such as the status without the exterior parts or for using commodities that are not yet conformable to the interchangeable ring.

11. Light box
To be used for adjustment of the camera system.

12. Camera stand
To be used together with the INF adjustment lens holder.

13. Patch cord
To be used to connect electrical parts, P.C. boards, etc. for servicing.

14. JIG connector cable
Connected to CN25 of the main board and used for measuring error rates, etc.

15. Service support software
To be used for adjustment with a personal computer.

16. PC cable
To be used to connect the VideoMovie and a personal computer with each other when a personal computer is used for adjustment.

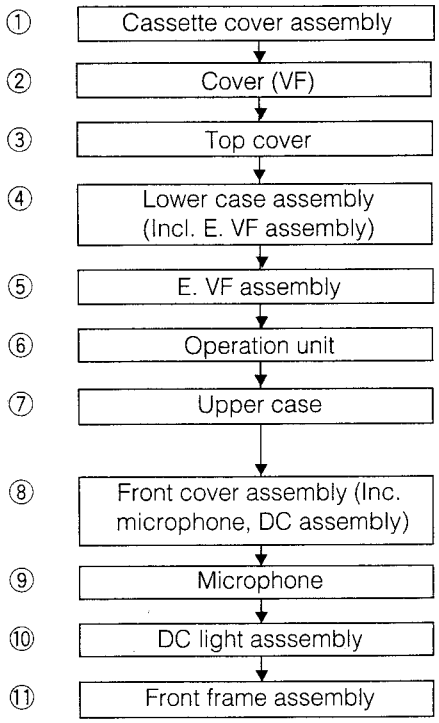
17. Soldering kit
Thin head is made so that it can be inserted into small spaces.

18. Cleaning cloth
Recommended cleaning cloth to wipe down the video heads, mechanism (tape transport system), optical lens surface.

1.3 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.


① Cassette cover assembly
② Cover (VF)
③ Top cover
④ Lower case assembly (Incl. E. VF assembly)
⑤ E. VF assembly
⑥ Operation unit
⑦ Upper case
⑧ Front cover assembly (Inc. microphone, DC assembly)
⑨ Microphone
⑩ DC light asssembly
⑪ Front frame assembly

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1a), 2(L1b), (L1c) PUSH BUTTON	<NOTE 1>
②	COVER (VF)	C2	2(S2), (L2)	–
③	TOP COVER	C3	2(S3),2(L3a), 2(L3b), 2(L3c)	–
④	LOWER CASE ASSEMBLY (INCL. E.VF ASSEMBLY)	C4	9(S4a), 3(S4b), (L4a), (L4b) (L4c), (L4d), (L4e) *CONNECTOR Ⓐ, Ⓑ CAP (RCA JACK) CAP (REAR JACK)	<NOTE 2> <NOTE 3>
⑤	E. VF ASSEMBLY	C5	2(S5)	–
⑥	OPERATION UNIT	C6	2(S6), (L6a), (L6b), (L6c) *CONNECTOR Ⓒ	<NOTE 3>
⑦	UPPER CASE	C7	4(S7), (L7)	–
⑧	FRONT COVER ASSEMBLY (INCL. MIC DC LIGHT ASSEMBLY)	C8	(S8a), 2(S8b), (L8a), (L8b) *CONNECTOR Ⓓ	<NOTE 3>
⑨	MICROPHONE		(S8b)	–
⑩	COVER (LIGHT)		2(L8c)	<GR-SX85O>
	DC LIGHT ASSEMBLY		2(L8c)	<GR-SX851/SX950>
⑪	FRONT FRAME ASSEMBLY	C9	2(S9)	–

List of Abbreviations:
(S1)=Screw (S1)
4(L1a)=4 Locking Tabs (L1a)

Reference Notes:
<NOTE 1>
Remove the push button, then remove one screw (1).

<NOTE 2>
When removing the LOWER CASE assembly, pay careful attention to the knob of the switch (*DC LIGHT) to get it neither damaged nor lost.

*For SX851/SX950

<NOTE 3>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector		
Ⓐ	2	LITHIUM	↔	MAIN CN26
Ⓑ	20	E. VF (COLOR)	⟺	MAIN CN11
Ⓒ	10	OPERATION UNIT	⟺	MAIN CN13
Ⓓ	2	MIC	↔	MAIN CN8

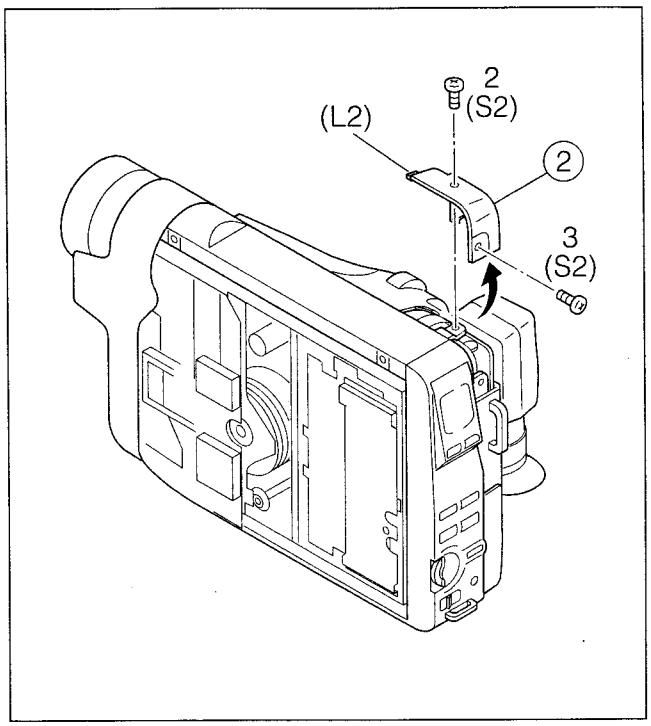


Fig. C2

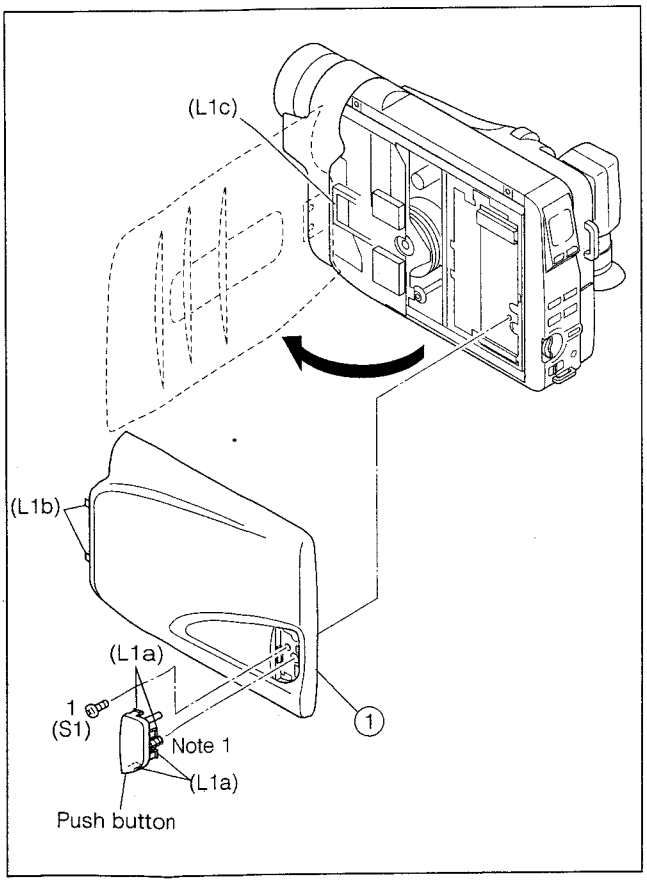


Fig. C1

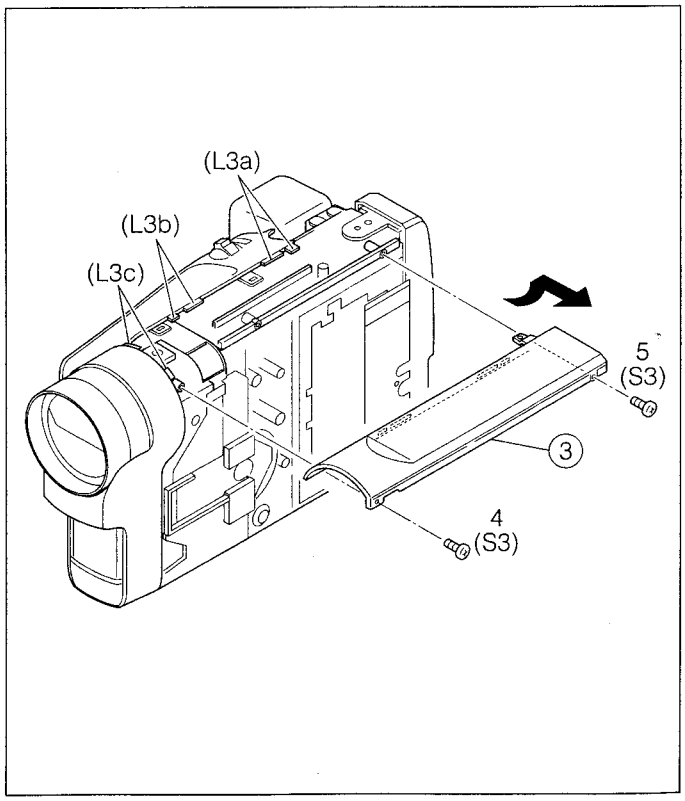


Fig. C3

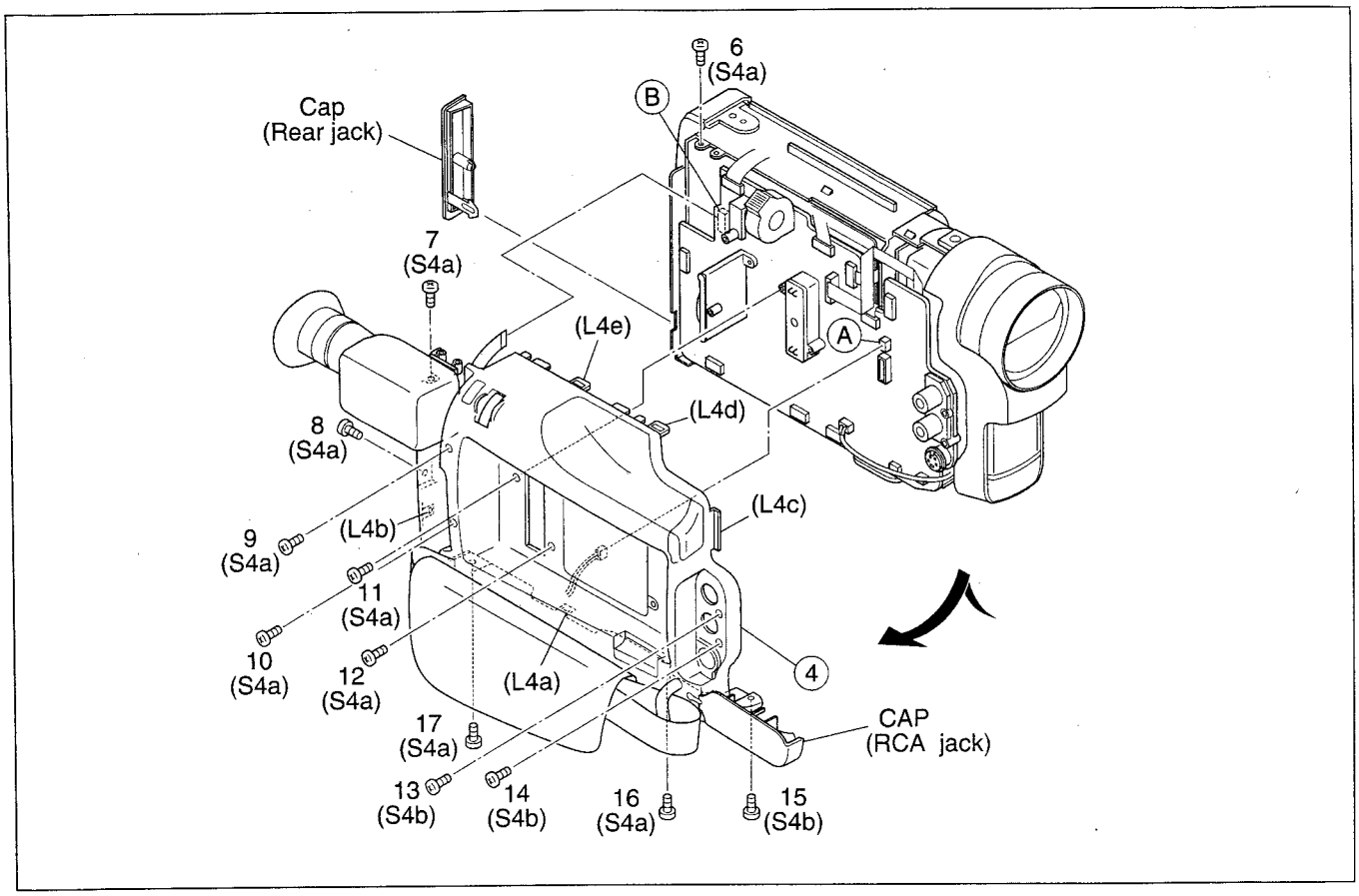


Fig. C4

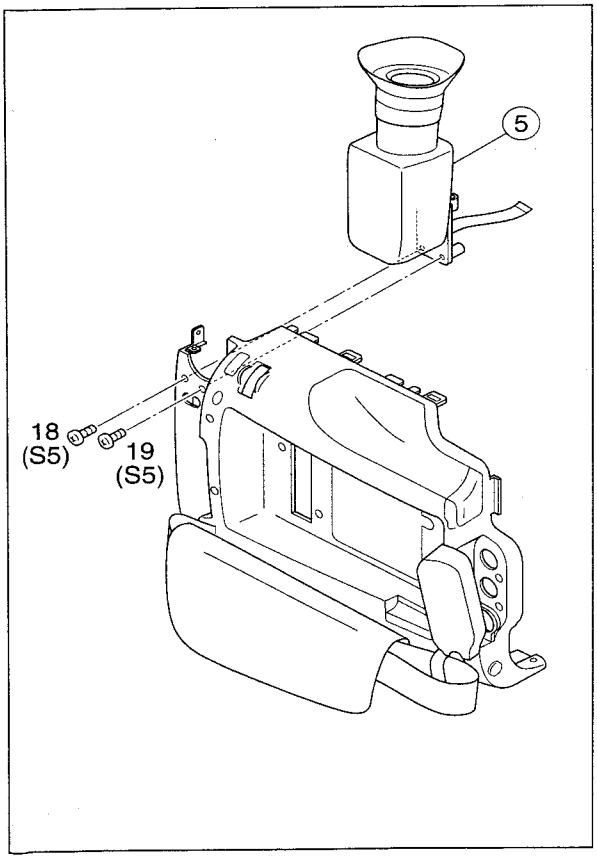


Fig. C5

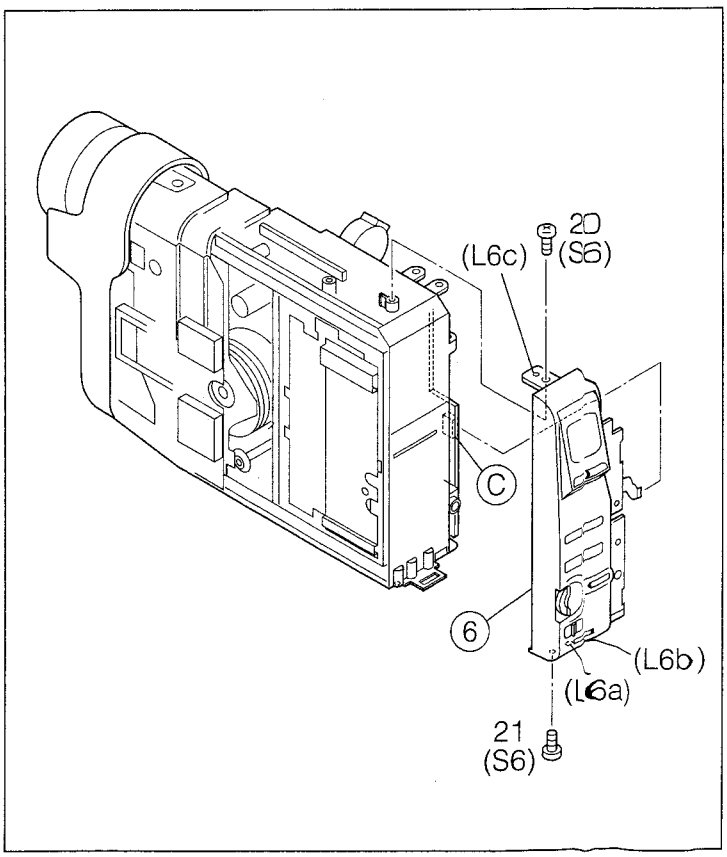


Fig. C6

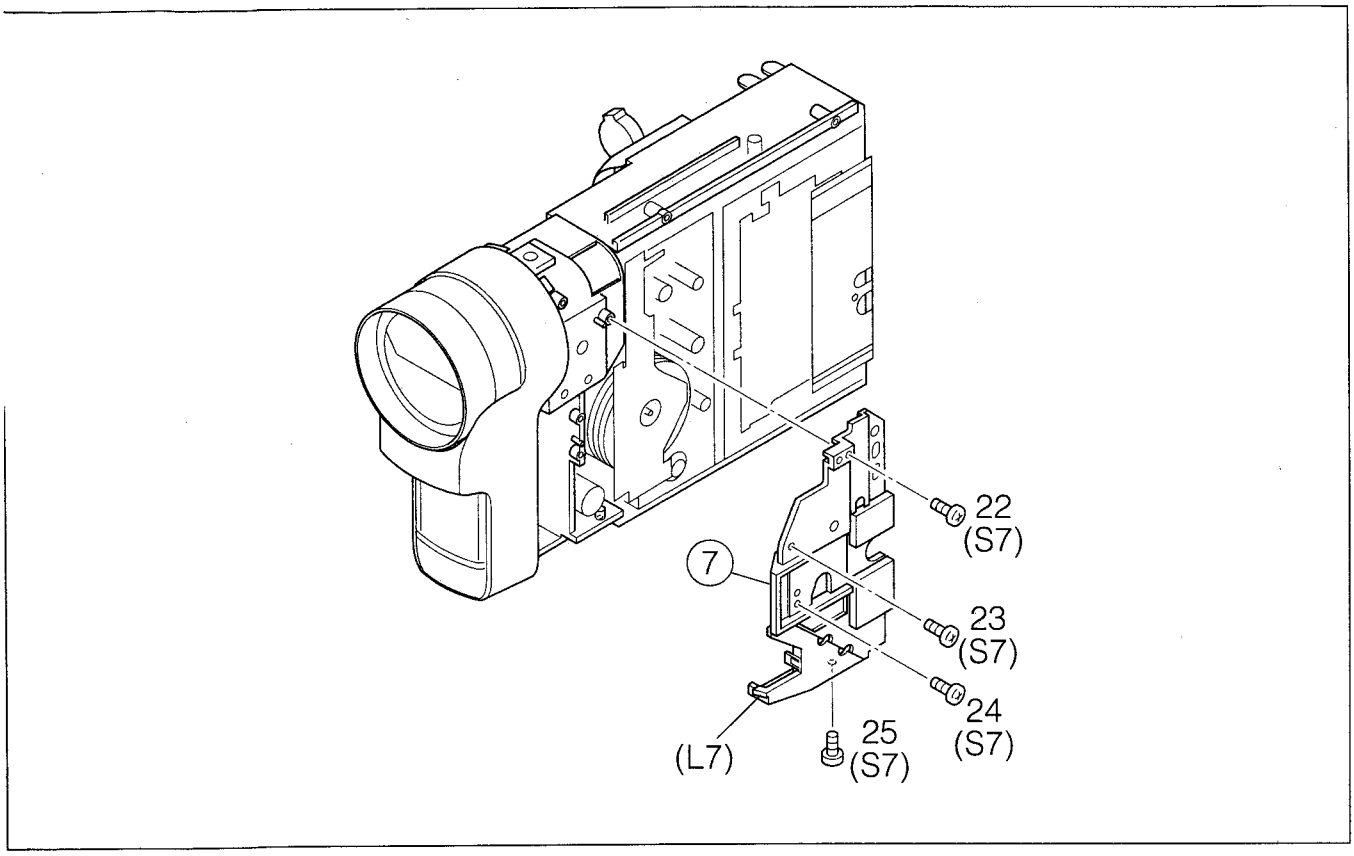

22
(S7)
7
23
(S7)
24
(S7)
(L7)
25
(S7)

Fig. C7

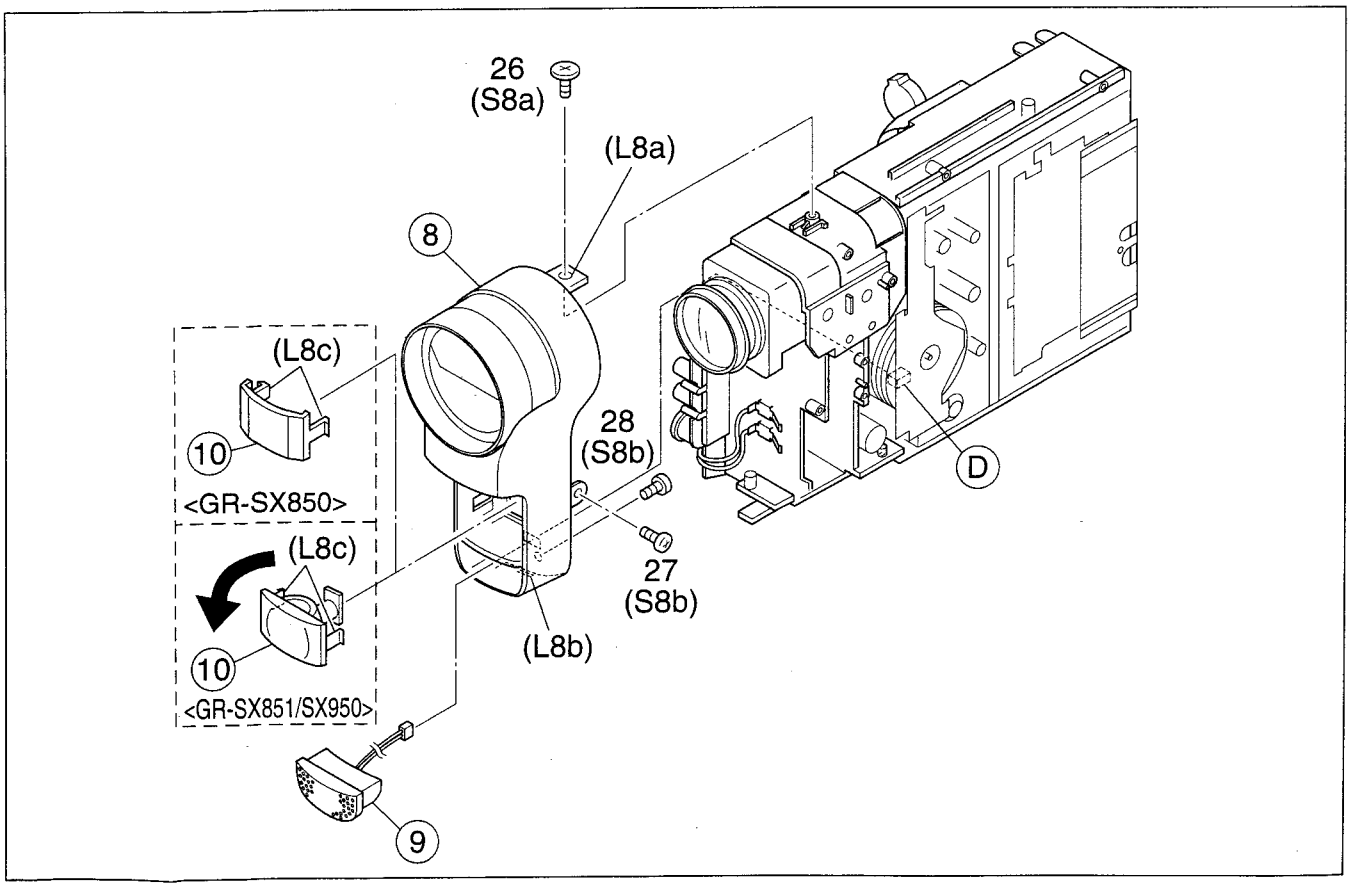

26
(S8a)
(L8a)
8
(L8c)
10
<GR-SX850>
(L8c)
10
<GR-SX851/SX950>
28
(S8b)
27
(S8b)
(L8b)
D
9

Fig. C8

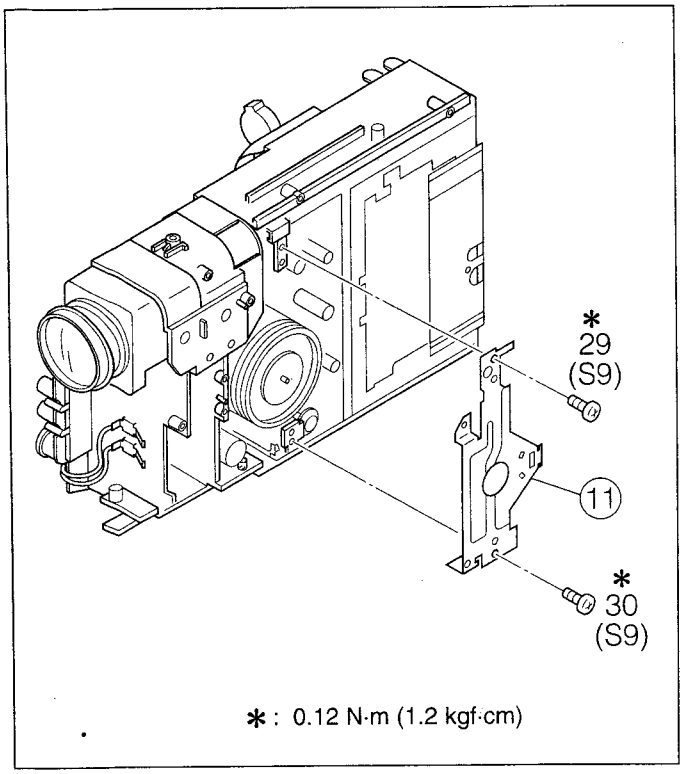


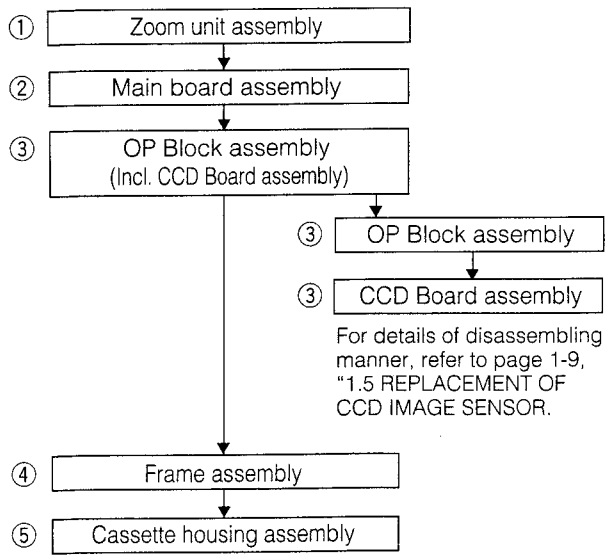
Fig. C9

1.4 DISASSEMBLY/ASSEMBLY OF CAMERA SECTION AND DECK SECTION

1.4.1 Flowchart of disassembly

The following flowchart shows the disassembly of the camera section and deck section. When reassembling the camera section and deck section, follow this flowchart in the reverse order.

<Camera section/Deck section>


① Zoom unit assembly
② Main board assembly
③ OP Block assembly (Incl. CCD Board assembly)
③ OP Block assembly
③ CCD Board assembly
For details of disassembling manner, refer to page 1-9, "1.5 REPLACEMENT OF CCD IMAGE SENSOR.
④ Frame assembly
⑤ Cassette housing assembly

1.4.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	ZOOM UNIT ASSEMBLY	D1	3(S1) *CONNECTOR Ⓔ	<NOTE 1>
②	MAIN BOARD ASSEMBLY	D2	2(S2a), (S2b) *CONNECTOR Ⓕ,Ⓖ,Ⓗ,Ⓙ Ⓚ,Ⓛ,Ⓜ,Ⓝ,Ⓞ	<NOTE 1>
③	OP BLOCK ASSEMBLY	D3	2(S3) CUSHION (OP)	–
④	FRAME ASSEMBLY	D4	2(S4a), (S4b)	–
⑤	CASSETTE HOUSING ASSEMBLY	D5	4(S5)	–

List of Abbreviations:
3(S1) = 3 Screws (S1)

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector		
Ⓔ	14	MAIN CN18	⟺	ZOOM UNIT
Ⓕ	2	MAIN CN4	↔	LOADING MOTOR
Ⓖ	10	MAIN CN1	⟺	DRUM MOTOR
Ⓗ	11	MAIN CN5	⟺	VIDEO/FLY. E HEAD
Ⓙ	14	MAIN CN2	⟺	SENSOR
Ⓚ	22	MAIN CN15	⟺	OP BLOCK
Ⓛ	14	MAIN CN22	⟺	CCD
Ⓜ	11	MAIN CN7	⟺	A/C HEAD
Ⓝ	18	MAIN CN3	⟺	CAPSTAN MOTOR
Ⓞ	2	MAIN CN14	↔	DC LIGHT

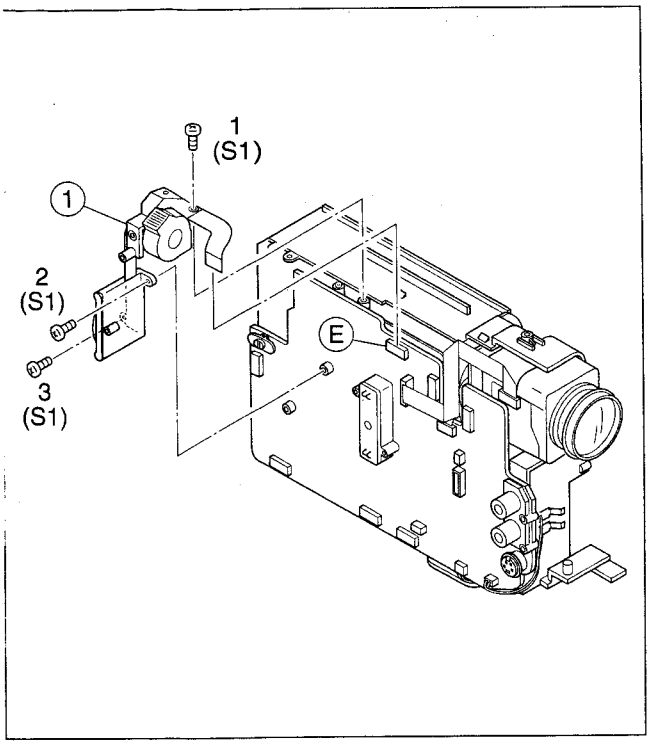


Fig. D1

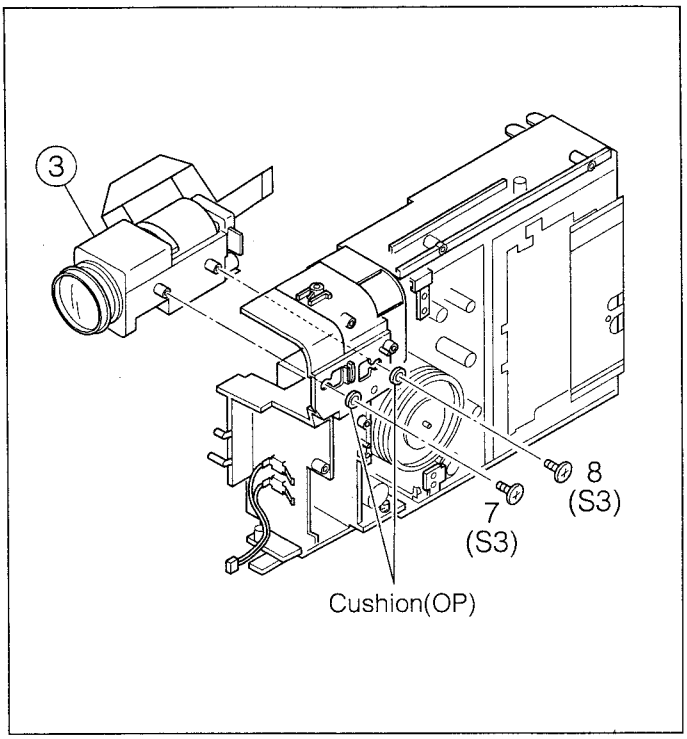


Fig. D3

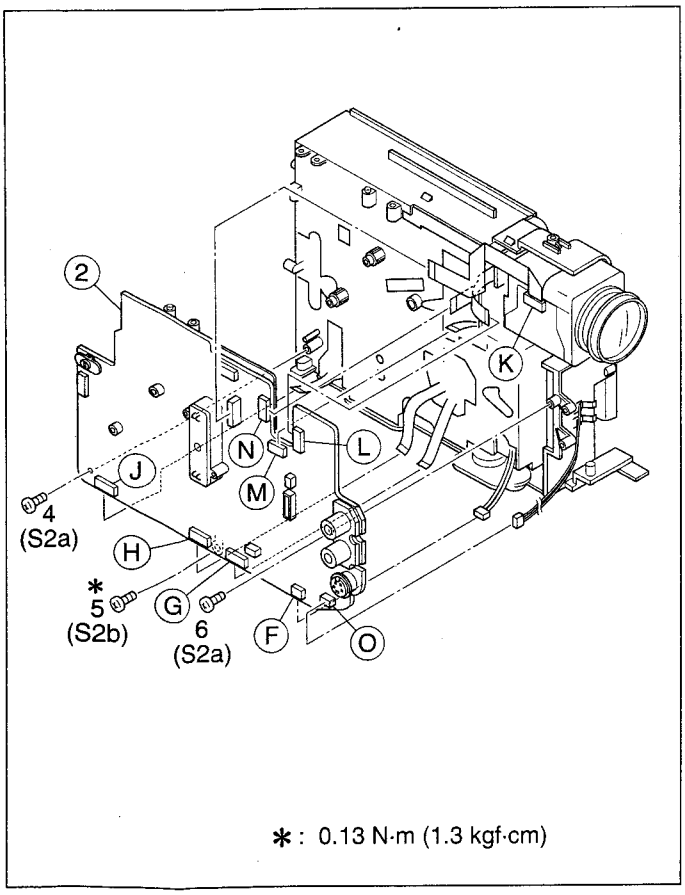


Fig. D2

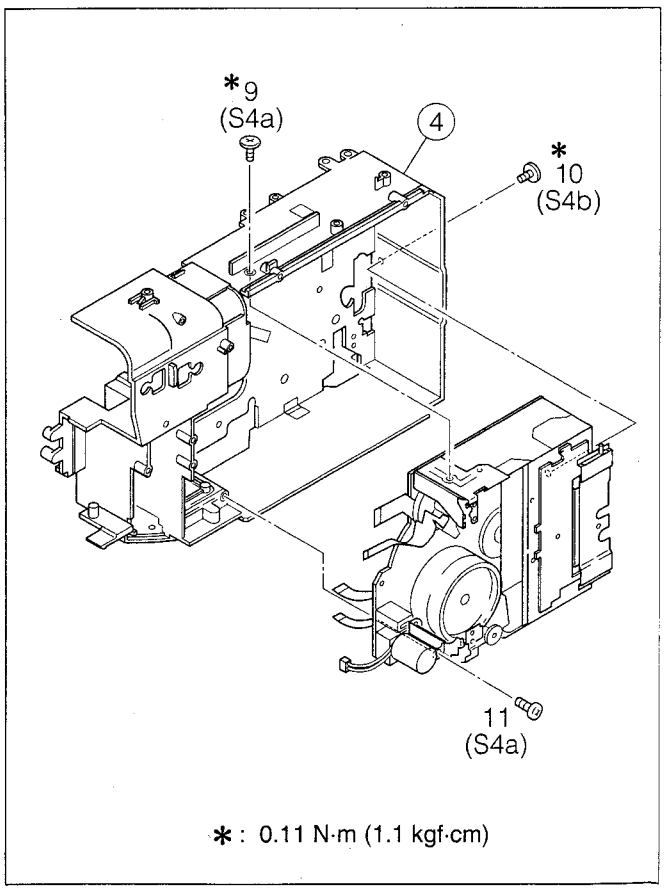


Fig. D4

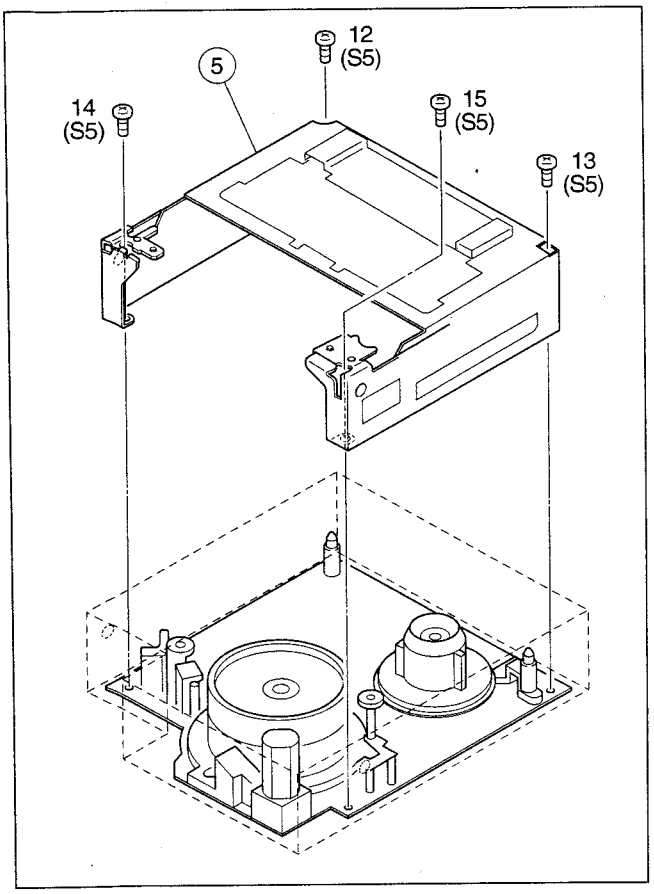


Fig. D5

1.5 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.5.1 Removal of CCD image sensor

1. Remove two screws (1, 2) securing the CCD base assy, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.5.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the optical LPF, spacer rubber, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-5-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the left and bottom viewed as indicated by the arrow ⓐ.

2. Fix the CCD base assy to OP block with the two screws (1, 2). At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

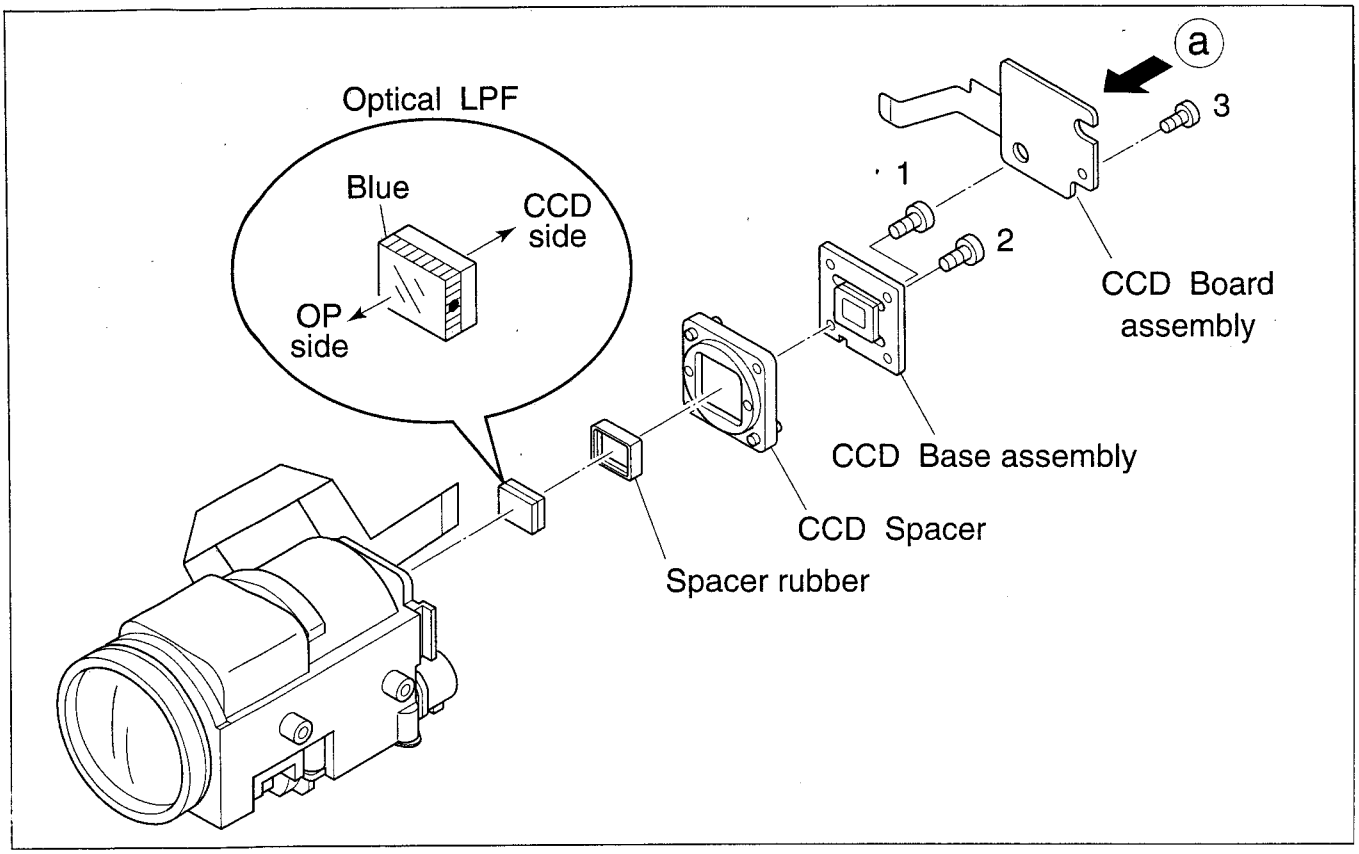


Fig. 1-5-1

1.6 REPLACEMENT OF CCD BOARD ASSY

1. Remove one screw (3).
2. Unsolder at the fourteen points on the CCD board assy.

Note: *1. Remove the screw (3) only when the CCD board assy needs replacement.*
2. When installing a new CCD board assy, carry out the above-mentioned procedure in the reverse order.

1.7 TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the cassette cover assembly, COVER (VF), top cover, (See Fig. C1, C2 and C3, Page 1-1, 2, 3 and 4)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-7-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up reel in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

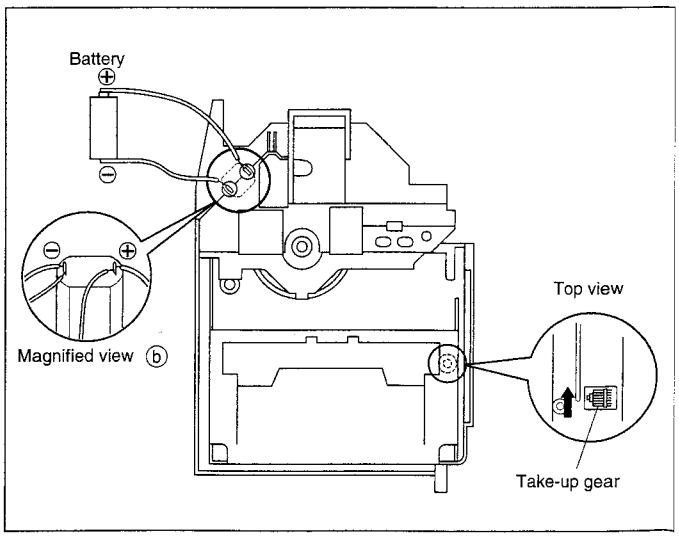


Fig. 1-7-1

1.8 EXTENSION CABLE CONNECTION

Connector	Connection	Pins	Parts Number
①	MAIN CN15 ⟷ OP BLOCK	22	YTU94074-22 YTU94077-22
②	MAIN CN22 ⟷ CCD	14	YTU94074-14 YTU94077-14
③	MAIN CN7 ⟷ A/C HEAD	11	YTU94074-11 YTU94077-11
④	MAIN CN3 ⟷ CAPSTAN MOTOR	18	YTU94074-18 YTU94077-18
⑤	MAIN CN2 ⟷ SENSOR	14	YTU94074-14 YTU94077-14
⑥	MAIN CN5 ⟷ VIDEO/FLY. E HEAD	11	YTU94074-11 YTU94077-11
⑦	MAIN CN1 ⟷ DRUM MOTOR	10	YTU94074-10 YTU94077-10
⑧	MAIN CN4 ⟷ LOADING MOTOR	2	YUJ40095A-2
⑨	MAIN CN12 ⟷ E. VF (COLOR)	20	YTU94074-20 YTU94077-20
⑩	MAIN CN13 ⟷ OPERATION UNIT	10	YTU94074-10 YTU94077-10
⑪	MAIN CN18 ⟷ ZOOM UNIT	14	YTU94074-14 YTU94077-14

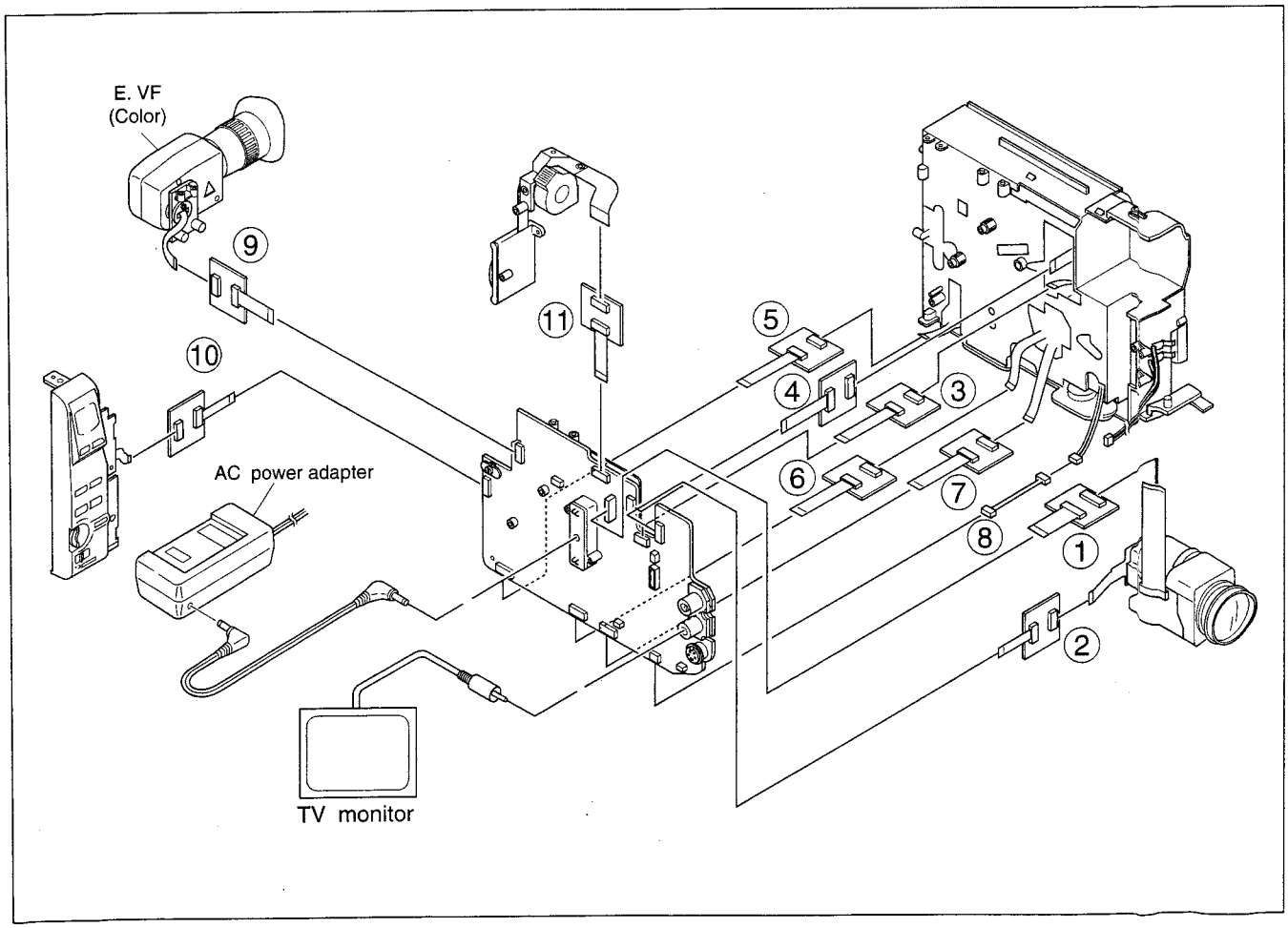


Fig. 1-8-1

1.9 EMERGENCY DISPLAY

Whenever some abnormal signal is supplied to mechacon CPU, an error number (E 04, for example) displayed in the electronic view finder.

- In an emergency mode, all operations except turning on/off the POWER switch are ineffectual.

E. VF	Symptom	Mode when observed	Resulting mode
E07	Short circuit of capstan MDA	Power ON	Power OFF
E06	CAPSTAN FG input absent	EDIT	Power OFF
E04	DRUM FF input absent	DRUM rotation	Power OFF
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF	UNLOADING →Power OFF
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	LOADING	Power OFF
E00	Overtime the programming transaction	REC, PLAY	Power OFF

1.10 DEMONSTRATION MODE

This model has the DEMONSTRATION mode.

1) How to set the DEMONSTRATION mode.
The camera can be entered into the DEMONSTRATION mode by setting on the DISPLAY screen appearing in the viewfinder.

When entering the camera into the DEMONSTRATION mode, pay heed to the following matters.

No cassette is set in the camcorder or a cassette is set in the camcorder but it is protected from recording.

Note) *The indications of the DISPLAY page very depending on the setting.*

2) How to cancel the DEMONSTRATION mode.
To cancel the DEMONSTRATION mode, turn the POWER switch off ("POWER OFF").

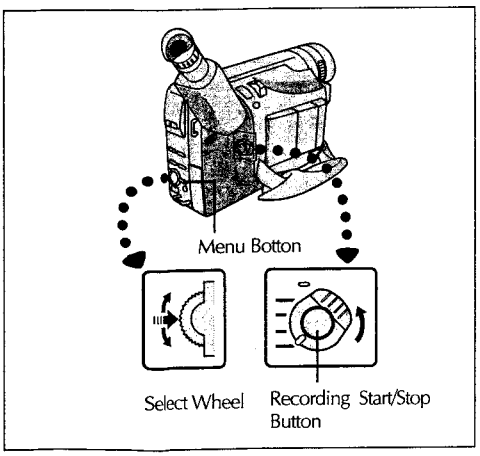
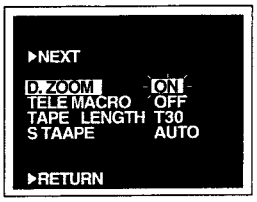


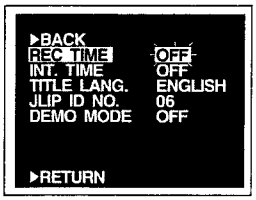
Fig. 1-10-1

1. Set the POWER switch to turn on the "PRO".
   Assume that the P.AE BUTTON is set at "FG".
   Press the MENU BUTTON once.
   The first page of the DISPLAY appears in the viewfinder.



Display 1

2. Turn the SELECT WHEEL in the direction of the arrow to set the cursor at "NEXT".
   Press the SELECT WHEEL once.
   The second page of the DISPLAY appears in the viewfinder.



Display 2

See to next page

<Flow chart>

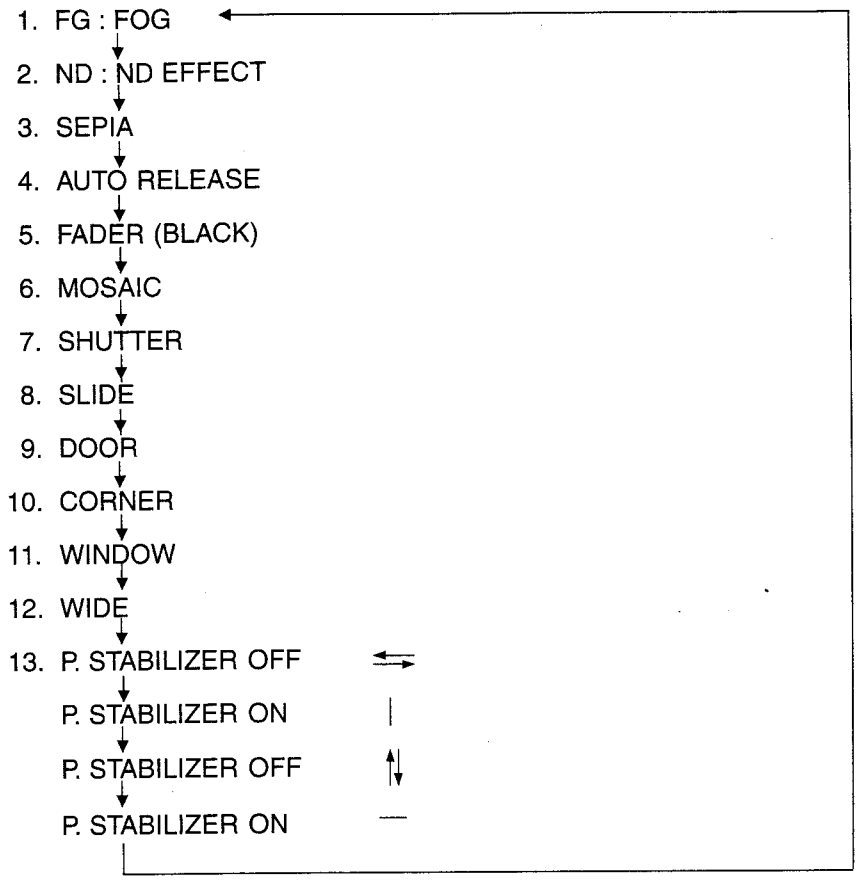
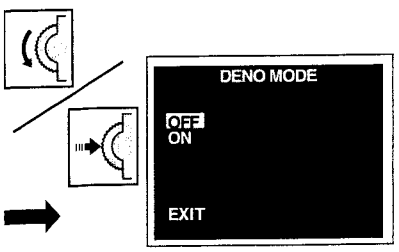


Fig. 1-10-2

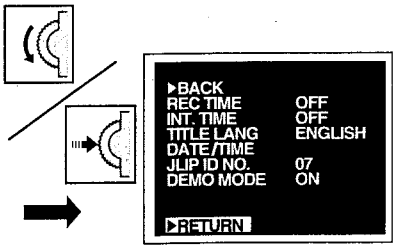
3. Turn the SELECT WHEEL in the direction of the arrow to set the cursor at "DEMO MODE". Then, press the SELECT WHEEL once. The third page of the DEMO MODE appears in the viewfinder.

4. Turn the SELECT WHEEL in the direction of the arrow to set the cursor at "ON". Then, press the SELECT WHEEL once. The fourth page of the DISPLAY appears in the viewfinder. ("DEMO MODE" is switched "ON" from "OFF" status.)

5. Press the SELECT WHEEL once. The camcorder automatically enters the DEMONSTRATION mode and it repeats demonstration operation. While the camcorder is performing demonstration, all operations except turning on/off the POWER switch are ineffectual.



Display 3



Display 4

Refer to Fig. 1-10-2.
While the DEMONSTRATION mode is activated, a word of "DEMONSTRATION" is appearing on the screen scrolling from right to left.

SECTION 2
MECHANISM ADJUSTMENT

YMA0028A is used in this model.

For the MECHANISM ADJUSTMENT, please refer to the MECHANISM ASSEMBLY of the Service Manual (No. 86532).

2.1 Required adjustment tools

• Prepare the following for adjustment.

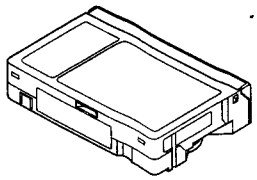
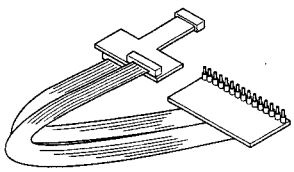
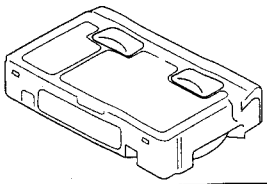
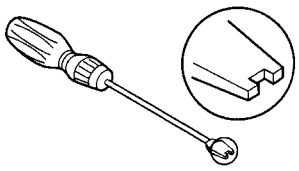
Alignment tape for interchangeability MHP-C: SP/MHP-LC: EP	Jig connector cable YTU93082E
	
Cassette torque meter PUJ50431-2	Roller Driver PTU94002-2
	

Table 2-1-1

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN board need replacement, please use original E²PROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-4). Please contact to JVC Service for detaile information.

- OP block
- C VF
- E²PROM (IC104 of MAIN board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Color TV monitor.
2. AC power adapter
3. Oscilloscope (dual-trace type, observable 100 MHz or higher frequency)
   * It is recommended to use one observable 300 MHz or higher frequency.
4. Digital voltmeter
5. Frequency counter (with threshold level adjuster)
6. Personal computer

3. Required adjustment tools

For detsails of special jigs necessary for adjustment, refer to page 1-2 and 1-3 of the Section 1.

4. Setup for E. VF section adjustment

Referring to "SEC. 1 DISASSEMBLY" and connect the E.VF FPC to CN11 of the MAIN board.

Note:

- *This adjustment falls into a special adjustment that requires a personal computer.*
  For details, refer to "3.1.1 Preparation".
- *Besides the special adjustment with a P.C., the H. POS adjustment without use of P.C. is needed for this item. (For details, refer to page 3-3.)*

5. Connection for Service support system

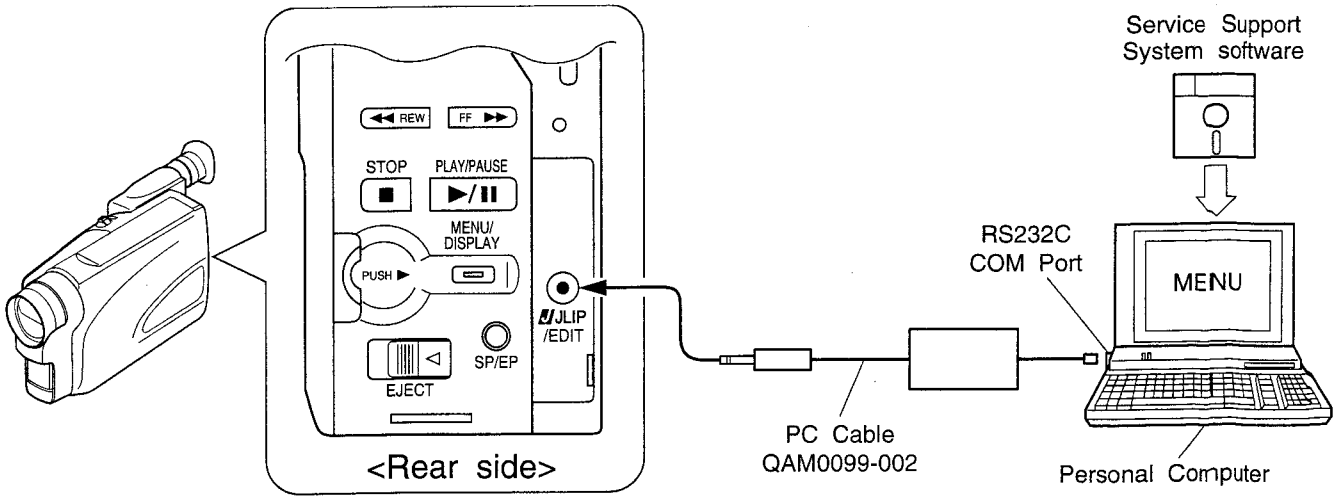


Fig. 3-1-1 Connection for Service support system

■ FUSE LOCATION FOR MAIN BOARD ASSEMBLY

–FOIL SIDE–

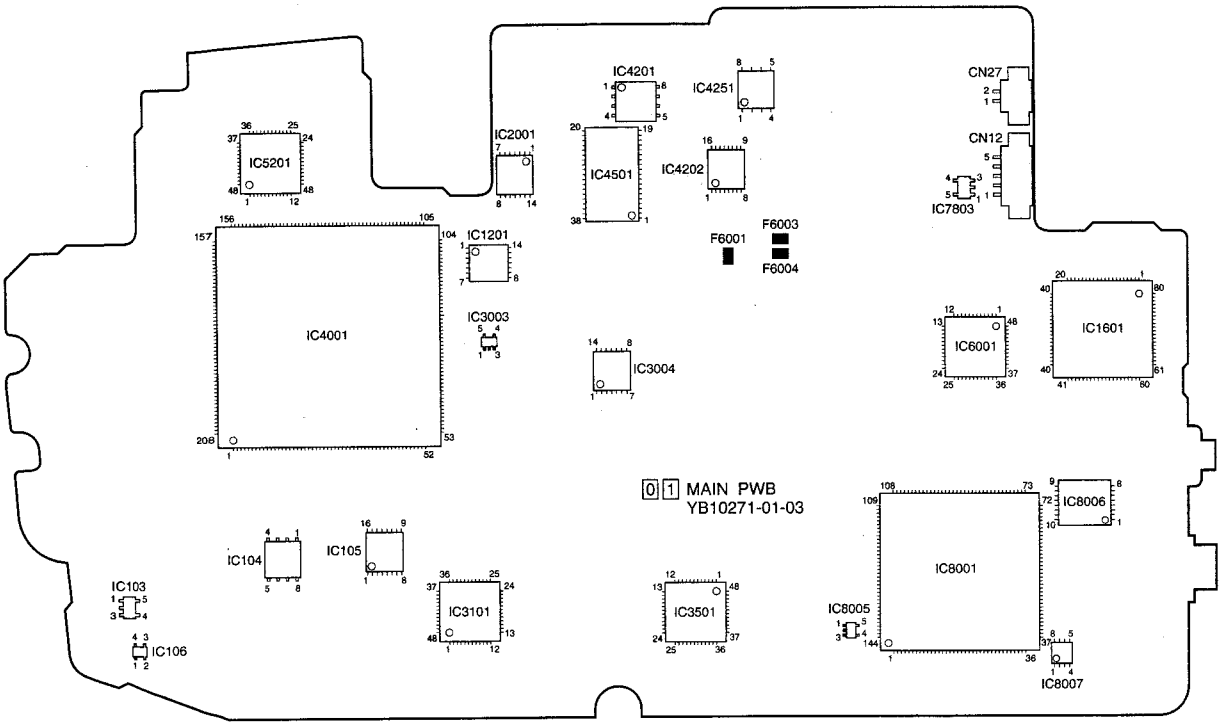


Fig. 3-1-2 FUSE location for MAIN board assembly (FOIL SIDE)

–COMPONENT SIDE–

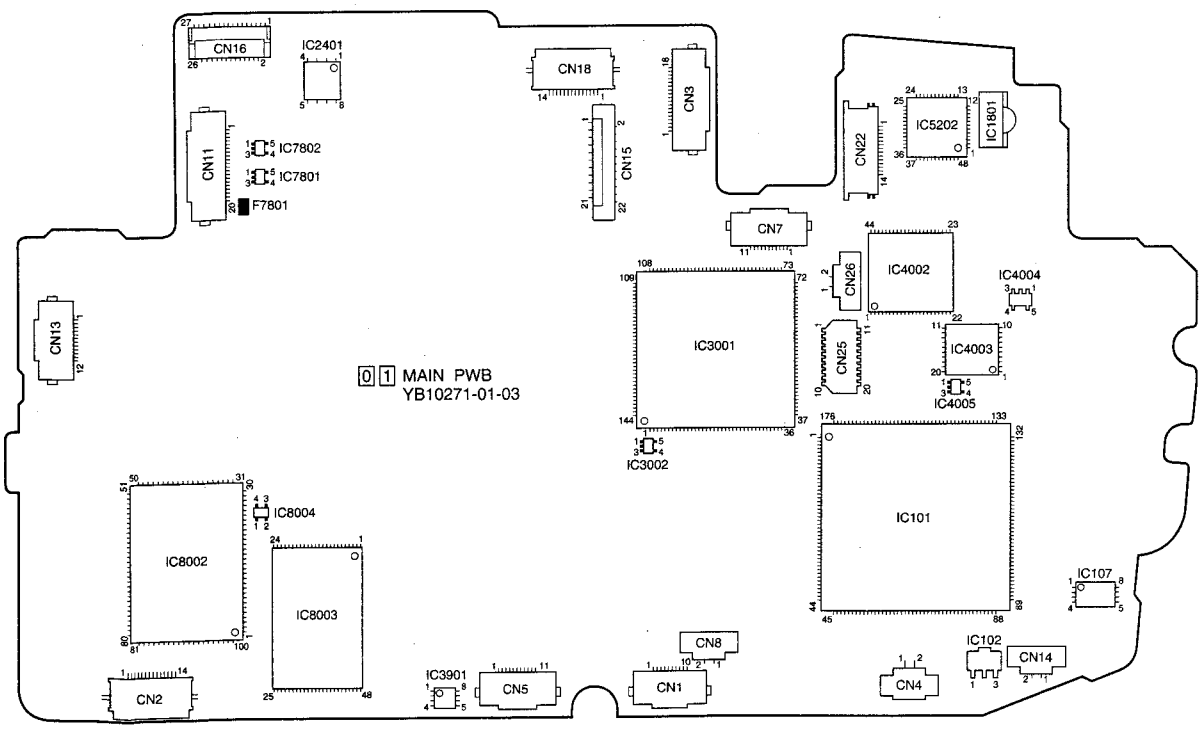


Fig. 3-1-3 FUSE location for MAIN board assembly (COMPONENT SIDE)

3.2 ELECTRONIC VIEWFINDER (C VF) ADJUSTMENT

Notes:

- *Unless otherwise specified, all measurement points and adjustment parts are located on C VF board.*

–FOIL SIDE–

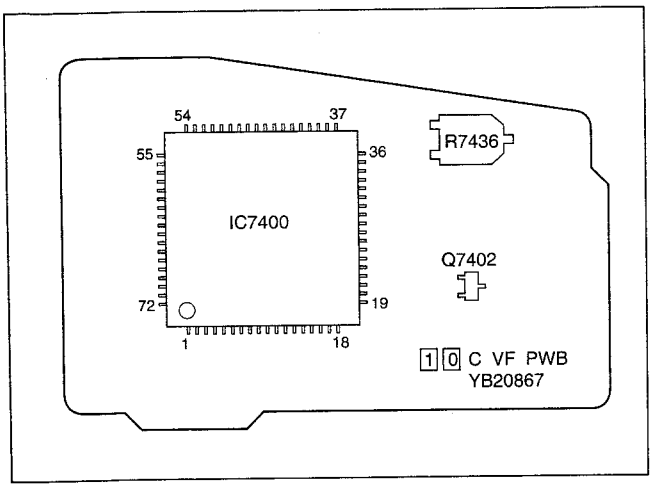


Fig. 3-2-1 Adjustment element location for C VF board assembly (Foil side)

3.2.1 H. POS

Signal	• Color bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC7400-24 (RPD)
Adjusting part	• R7436 (H. POS)
Specification	• "A" = 0.5B±0.01B

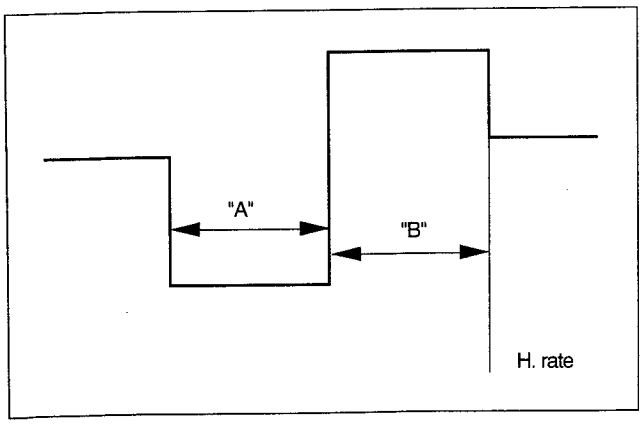


Fig. 3-2-2 H. POS

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

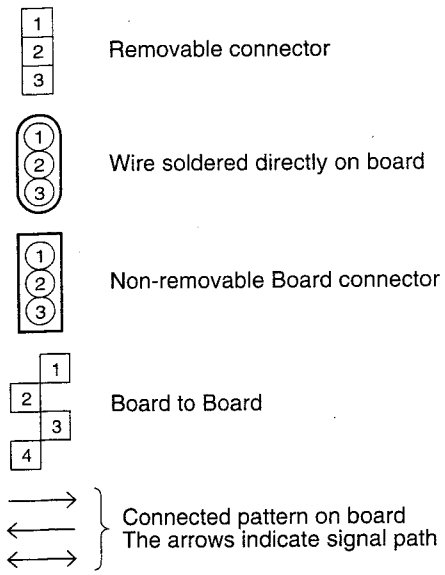
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

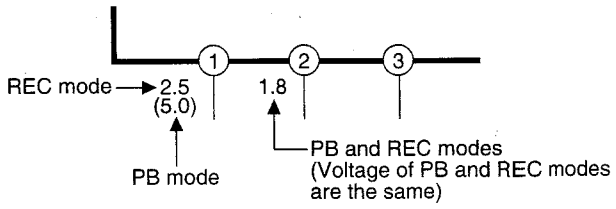
$\overline{AUX}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

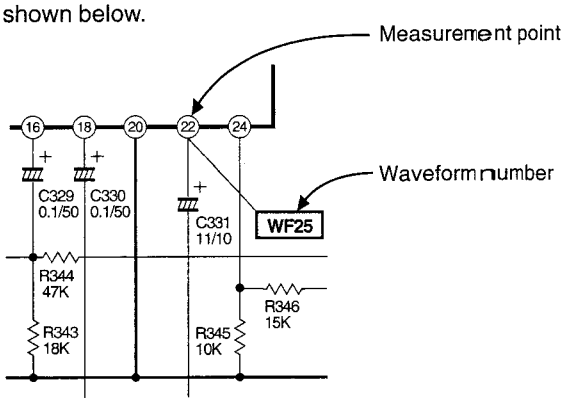
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



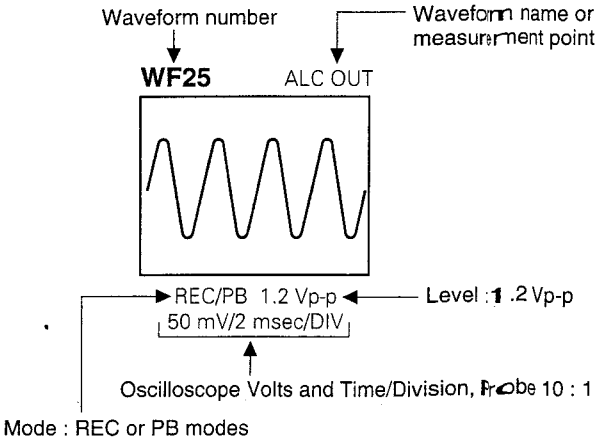
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



5. Signal path Symbols

The arrows indicate the signal path as follows.

Playback signal path

Playback and recording signal path

Recording signal path
(including E-E signal path)

Capstan servo path

Drum servo path

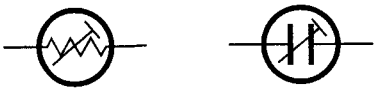
(Example)

Playback R-Y signal path

Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

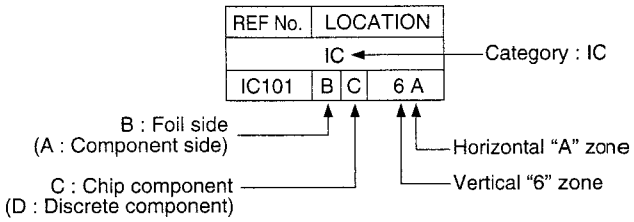
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

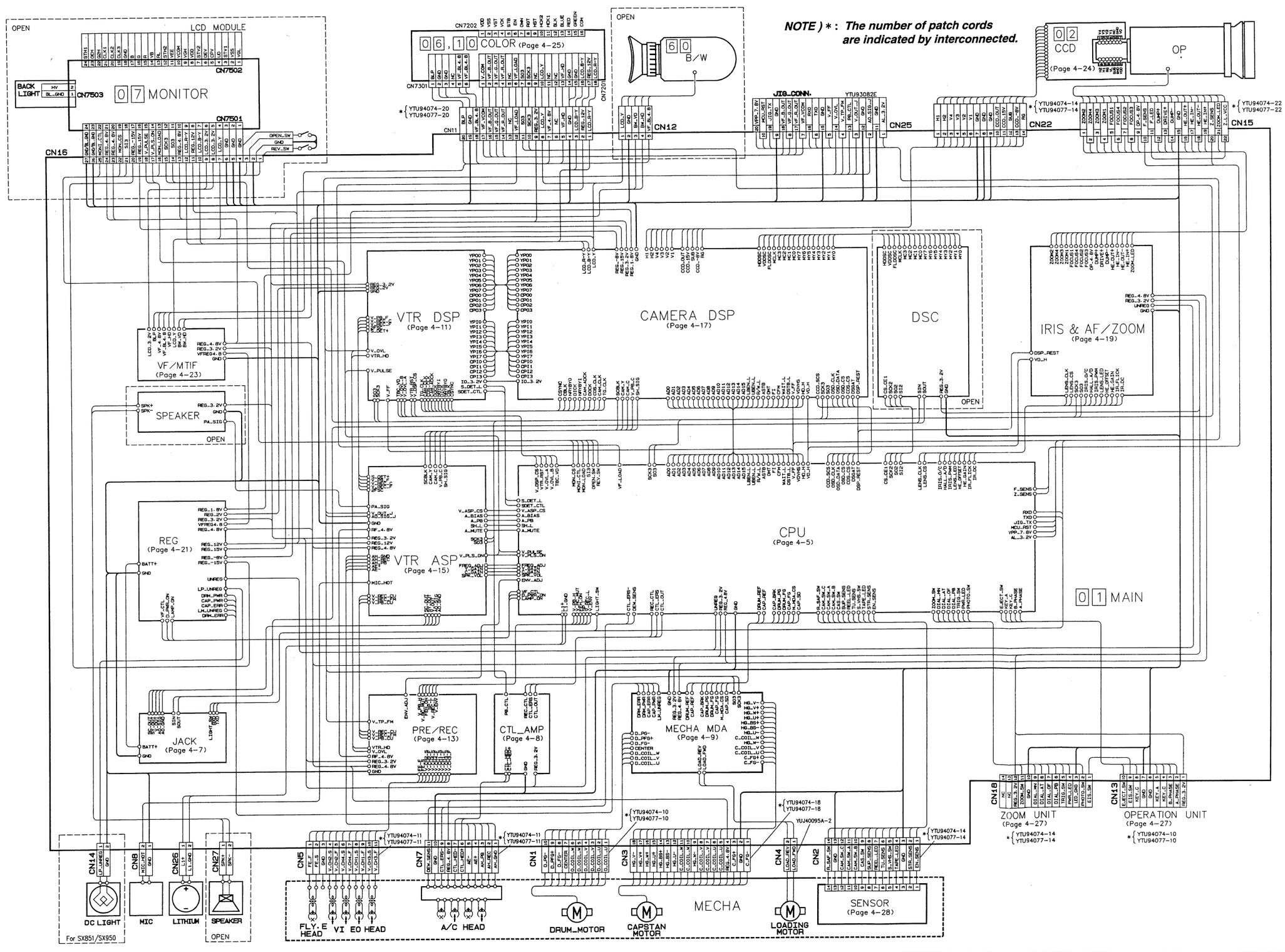
Parts location are indicated by guide scale on the circuit board.



Note:

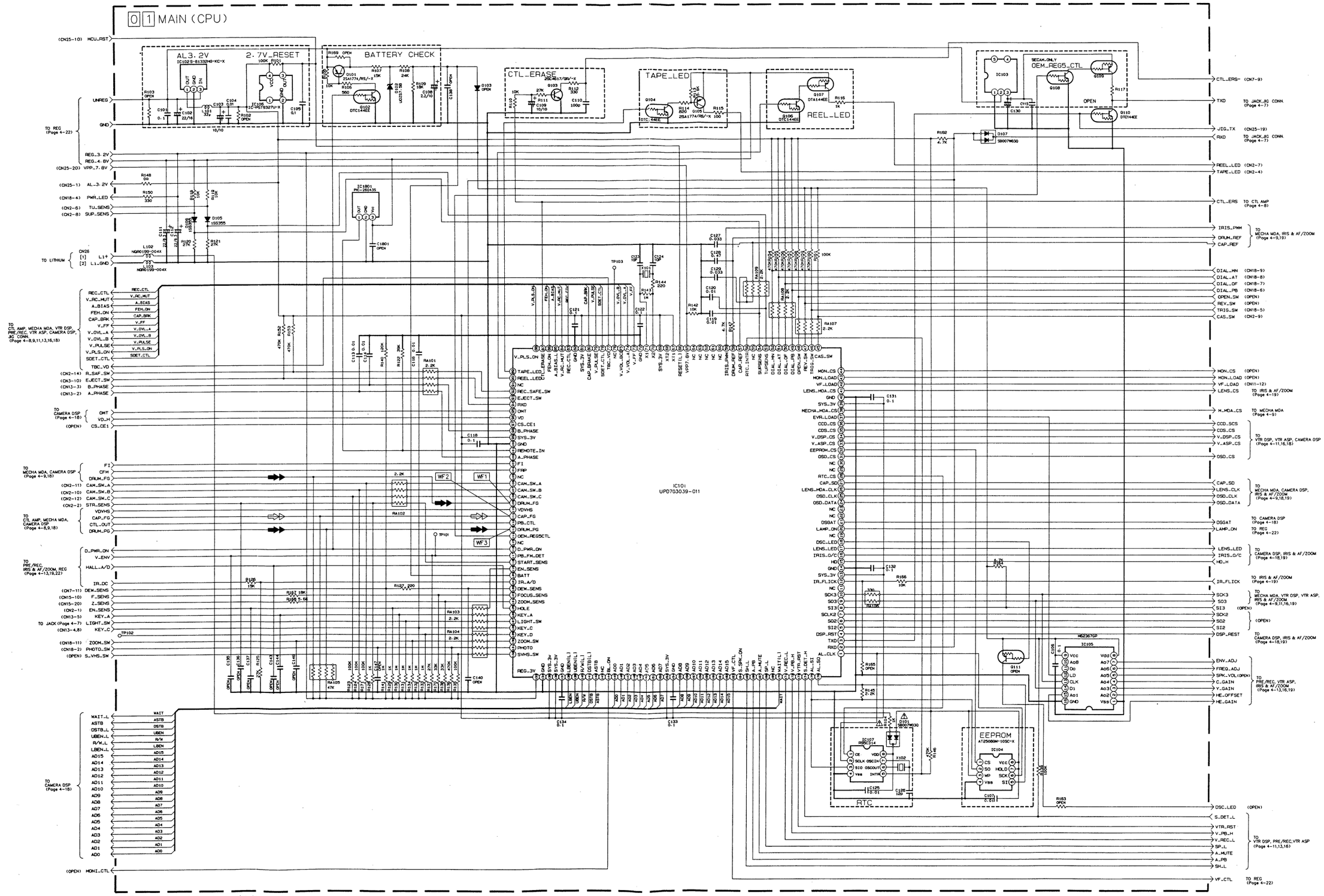
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



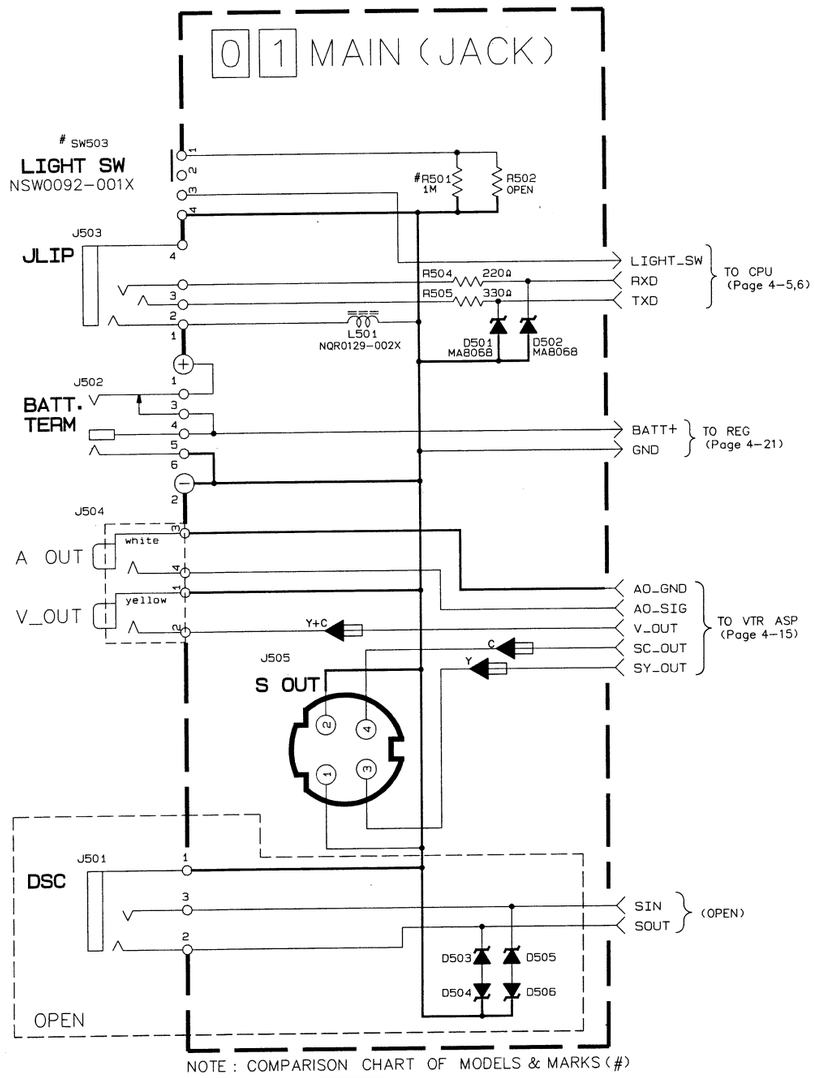
4.2 CPU SCHEMATIC DIAGRAM

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



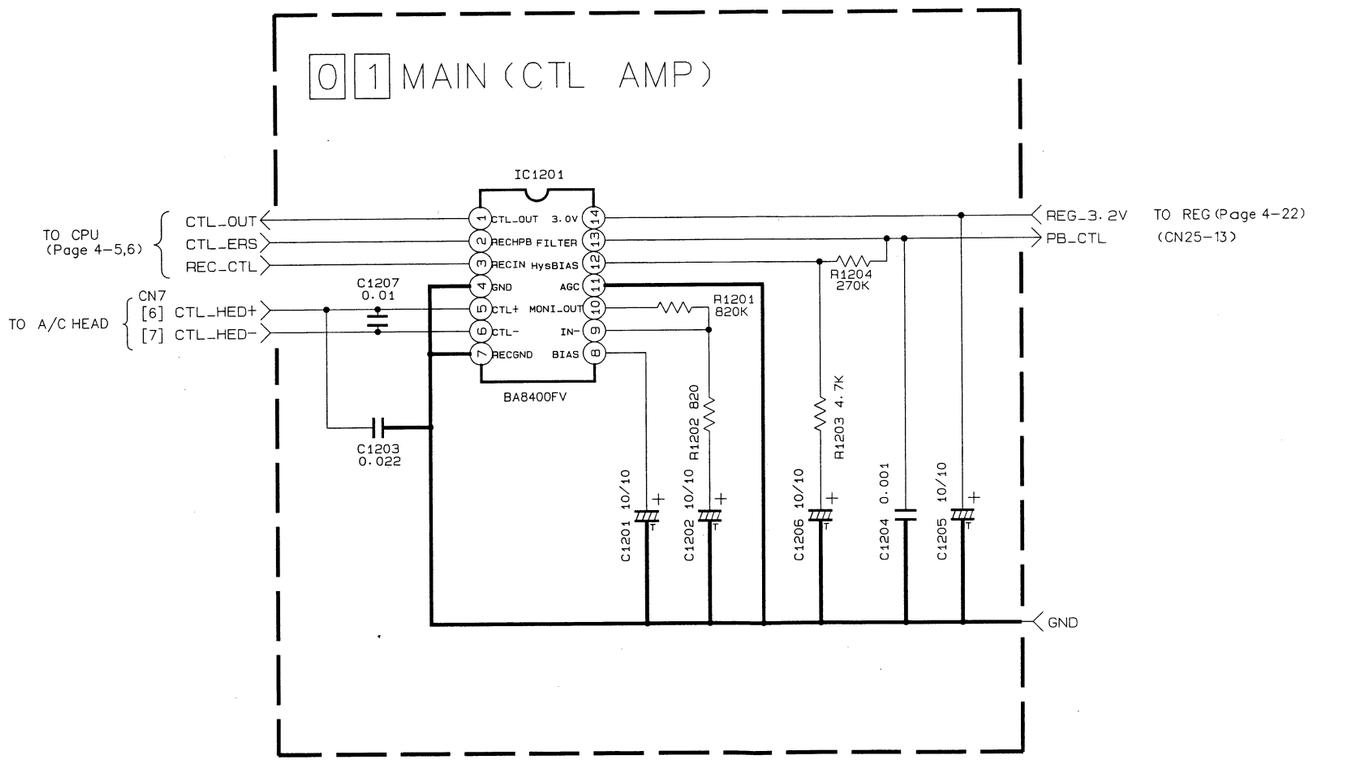
4.3 JACK AND CTL AMP SCHEMATIC DIAGRAMS

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



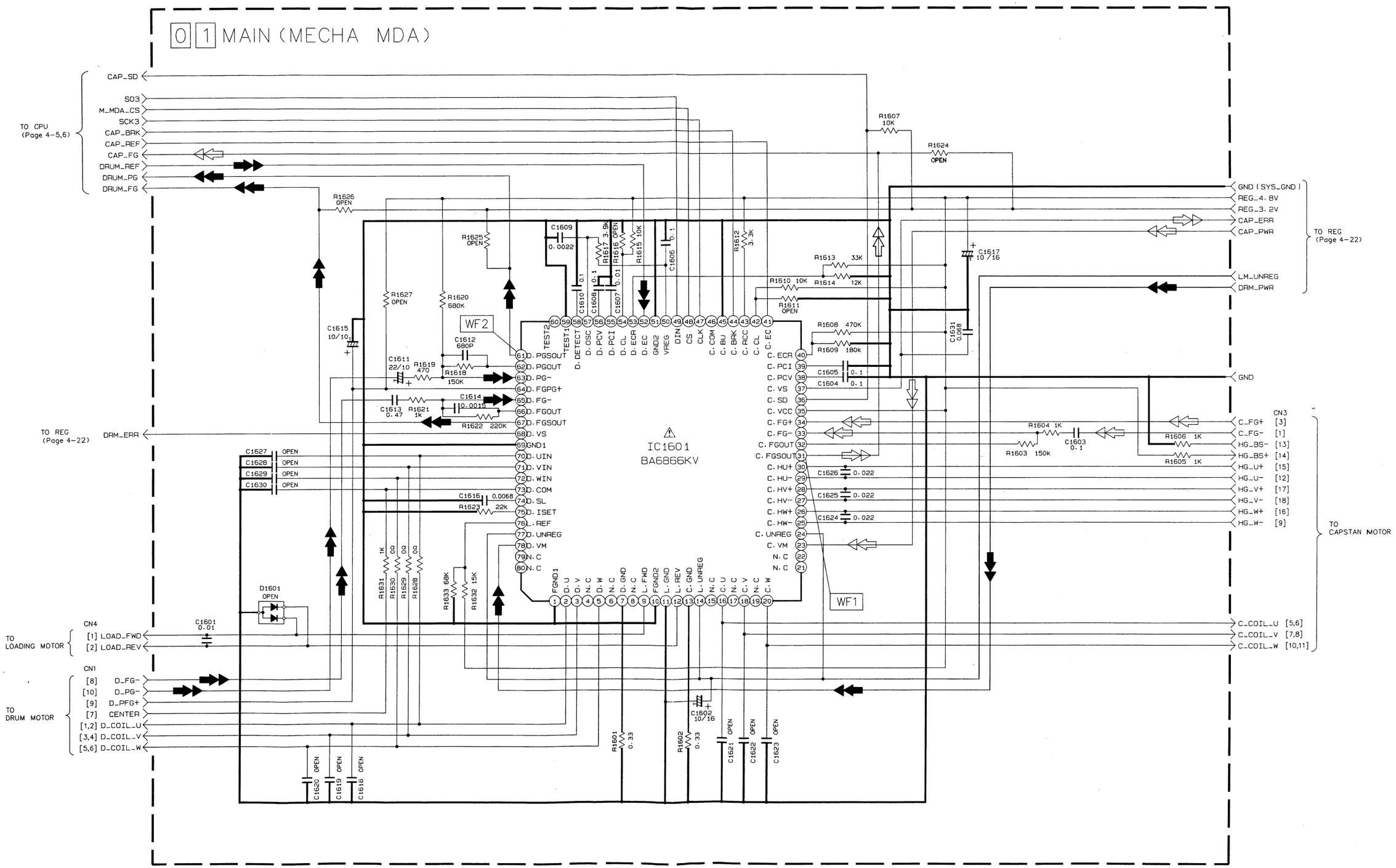
NOTE : COMPARISON CHART OF MODELS & MARKS (#)

REF. No / MODELS	R501	SW503
GR-SX850	OPEN	OPEN
GR-SX851	USED	USED
GR-SX950	USED	USED



4.4 MECHA MDA SCHEMATIC DIAGRAM

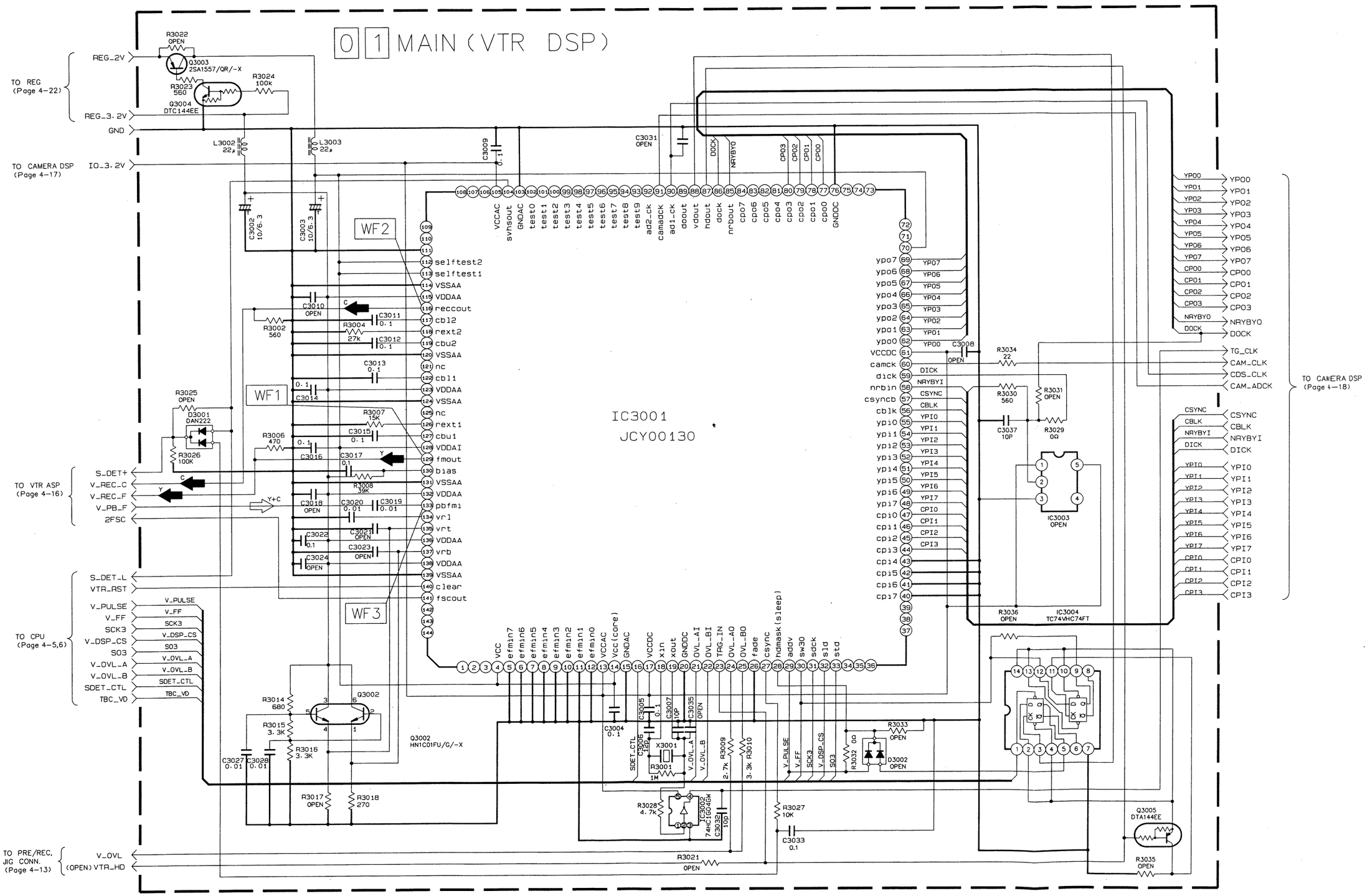
NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE : For MECHA MDA waveforms, please refer to page 4-51.

4.5 VTR DSP SCHEMATIC DIAGRAM

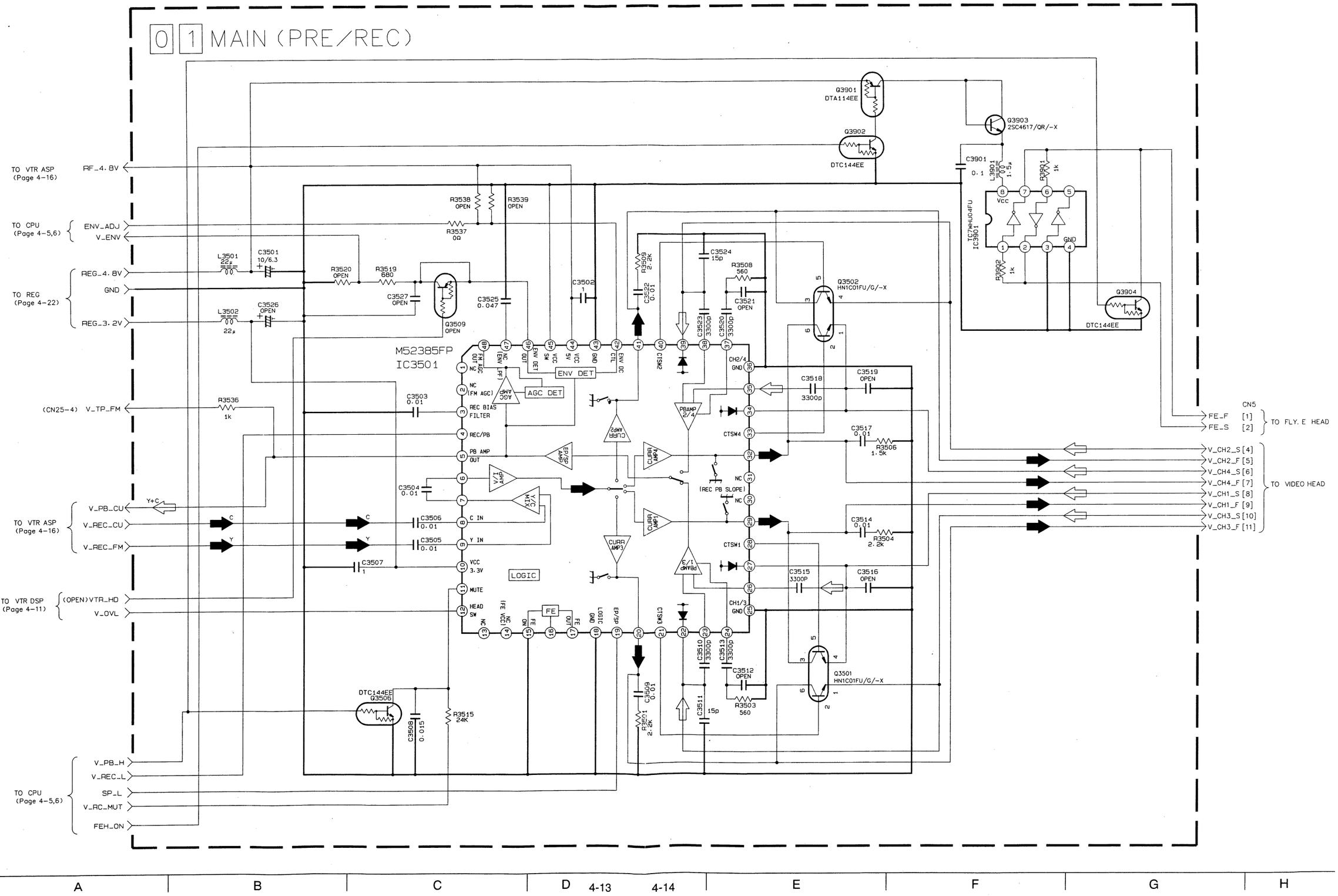
NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE : For VTR DSP waveforms, please refer to page 4-51.

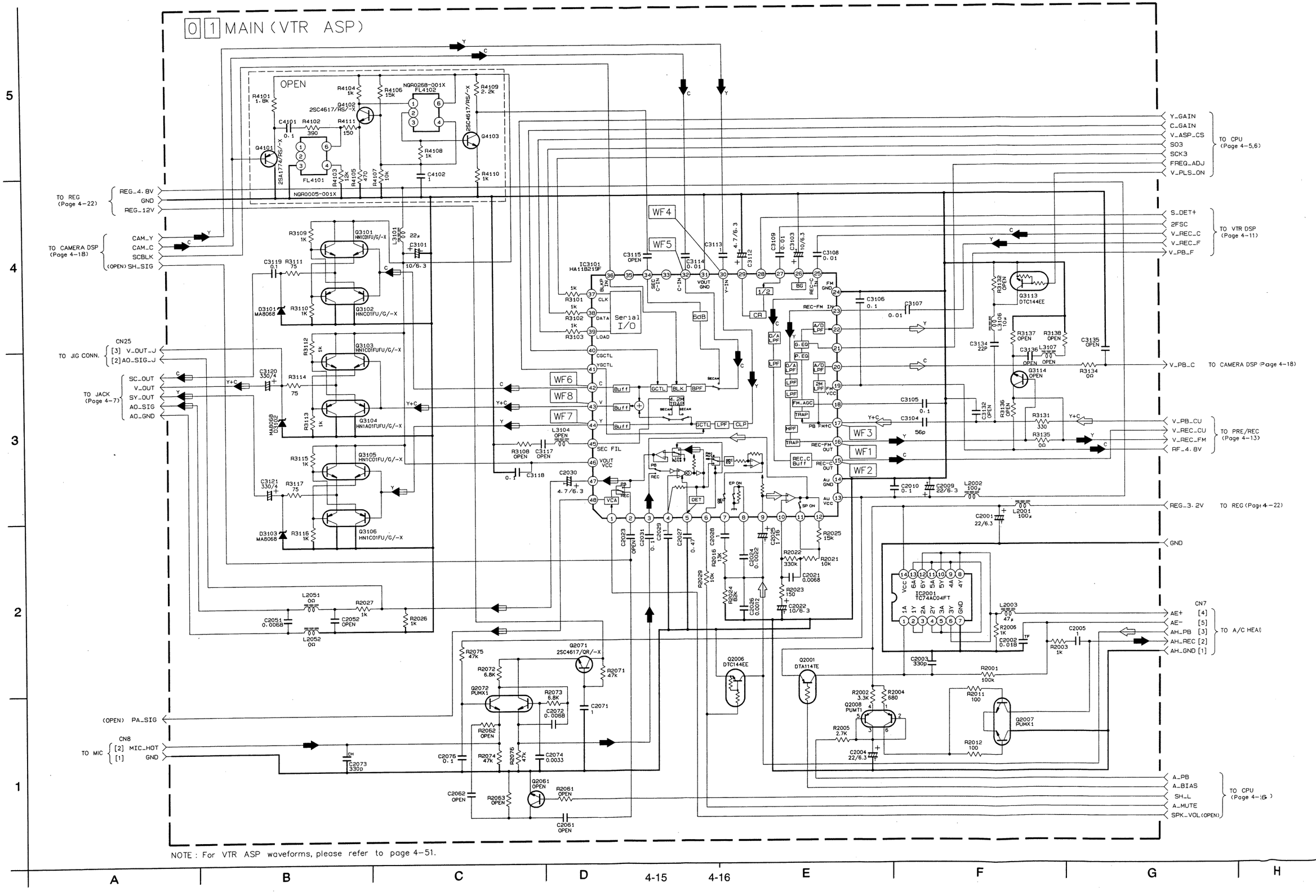
4.6 PRE/REC SCHEMATIC DIAGRAM

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.7 VTR ASP SCHEMATIC DIAGRAM

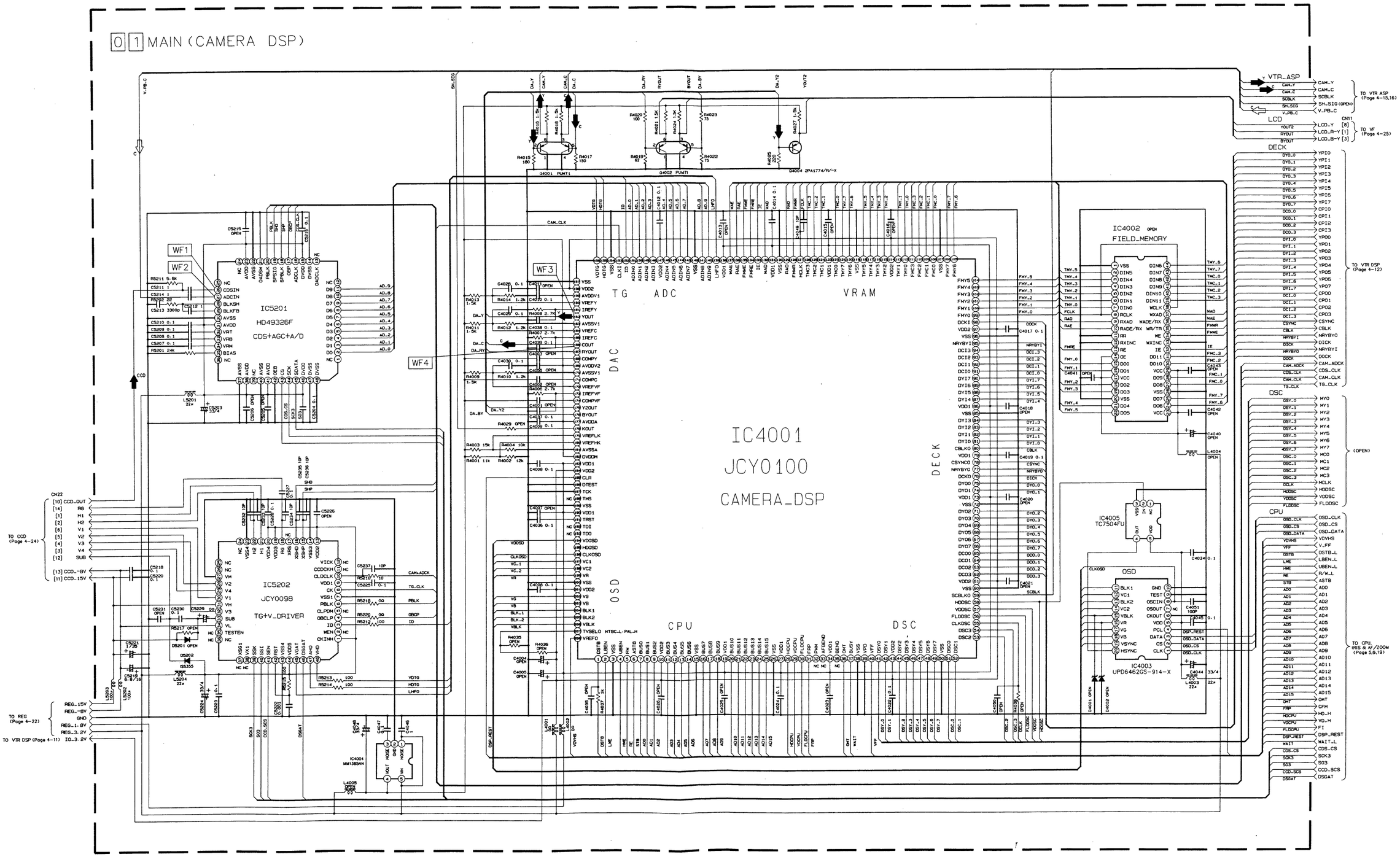
NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE : For VTR ASP waveforms, please refer to page 4-51.

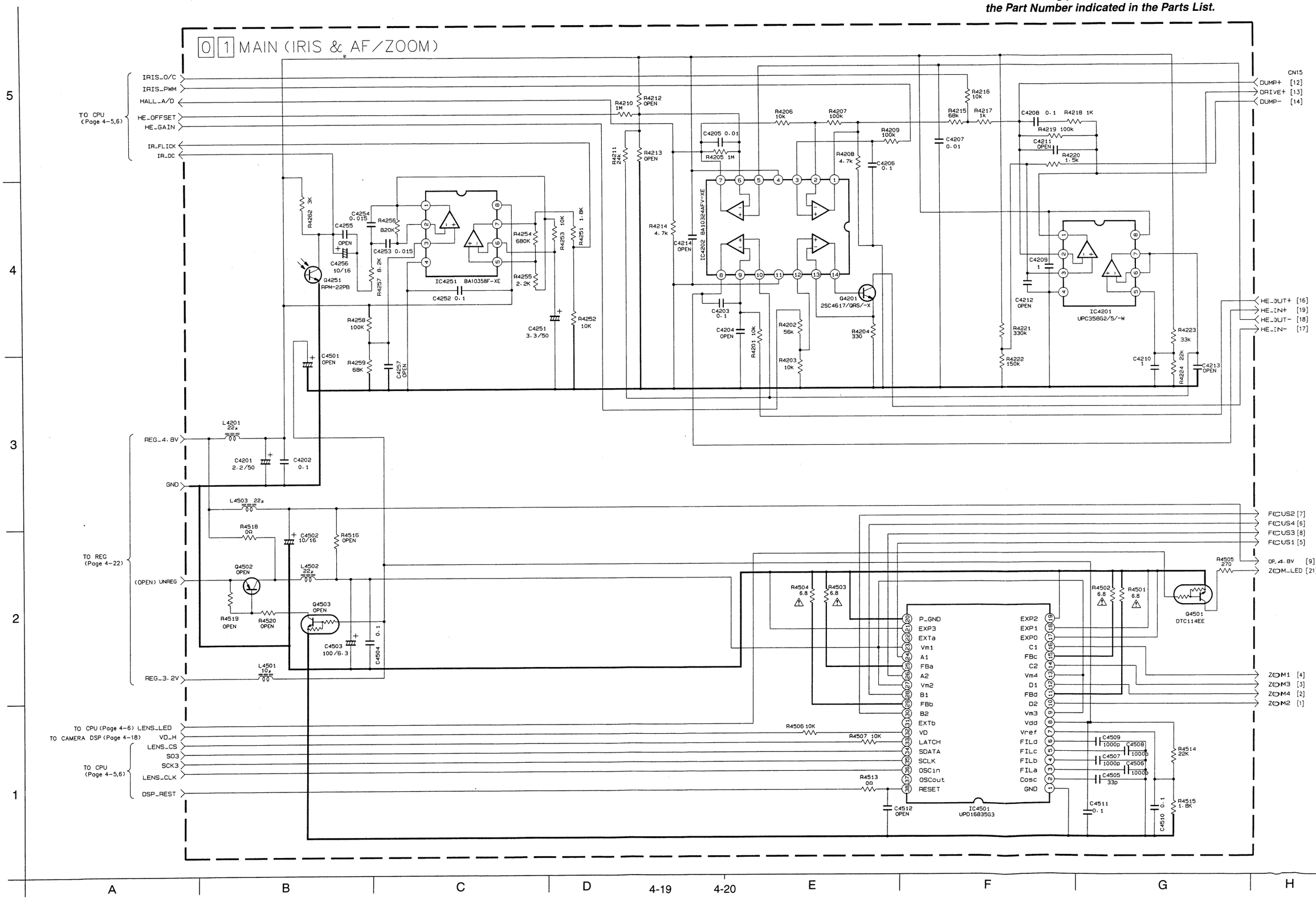
4.8 CAMERA DSP SCHEMATIC DIAGRAM

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.9 IRIS & AF/ZOOM SCHEMATIC DIAGRAM

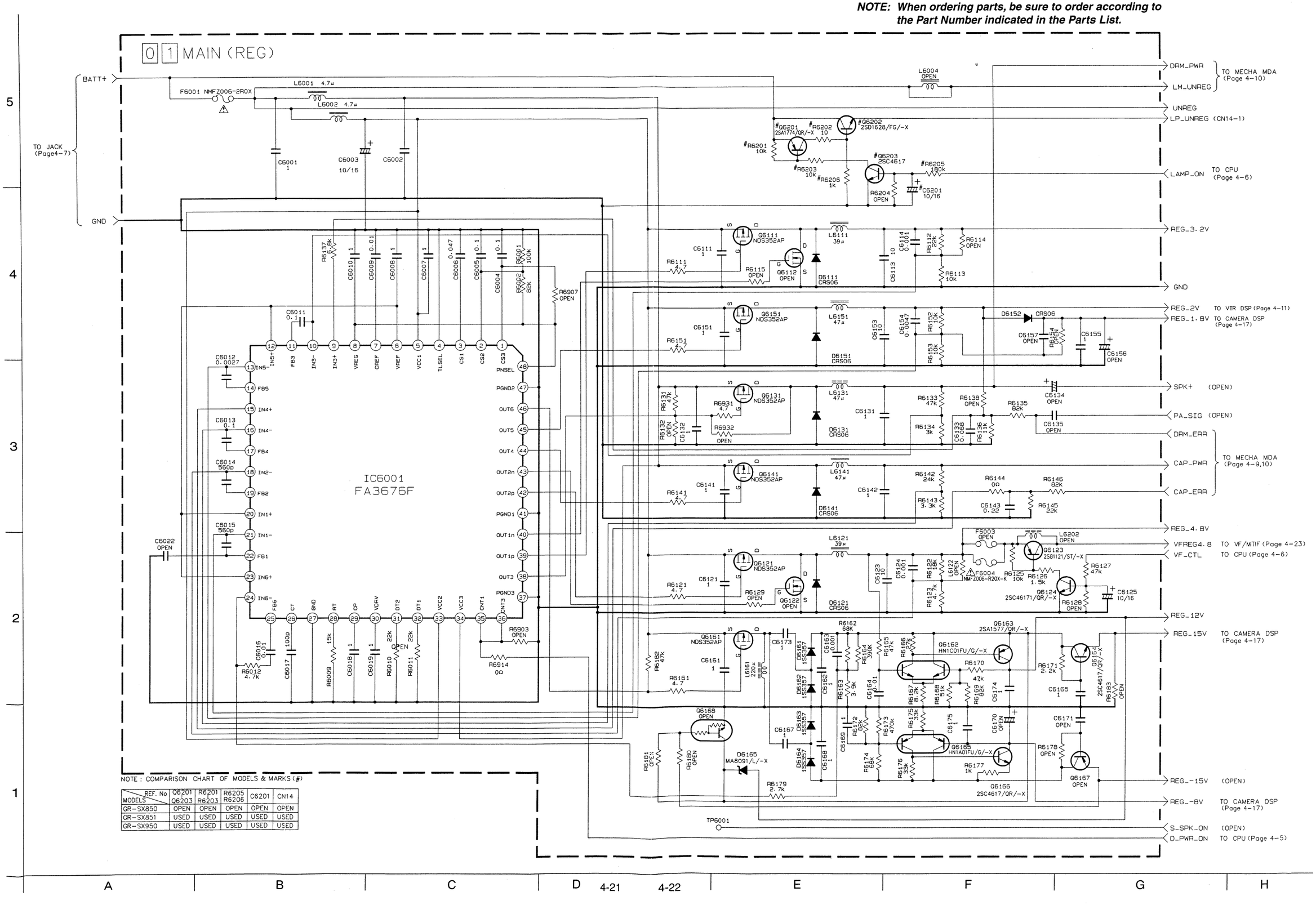
NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



A B C D 4-19 4-20 E F G H

4.10 REGULATOR SCHEMATIC DIAGRAM

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

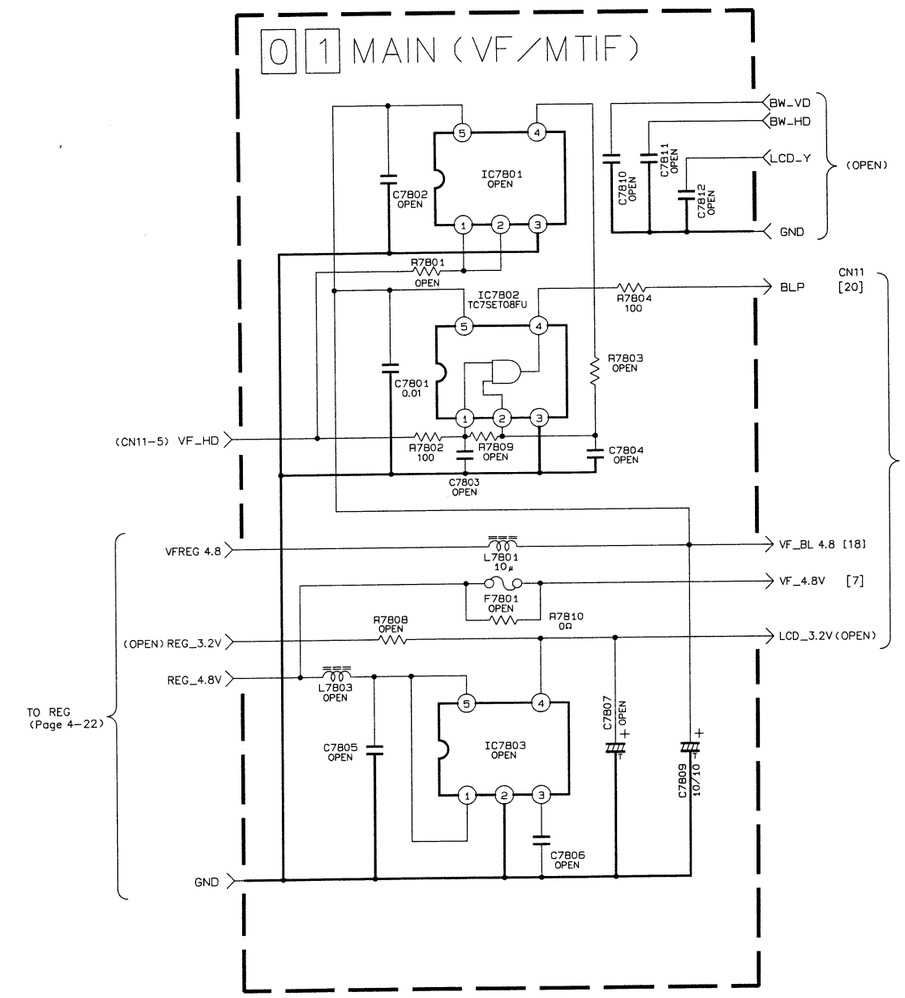


NOTE : COMPARISON CHART OF MODELS & MARKS (#)

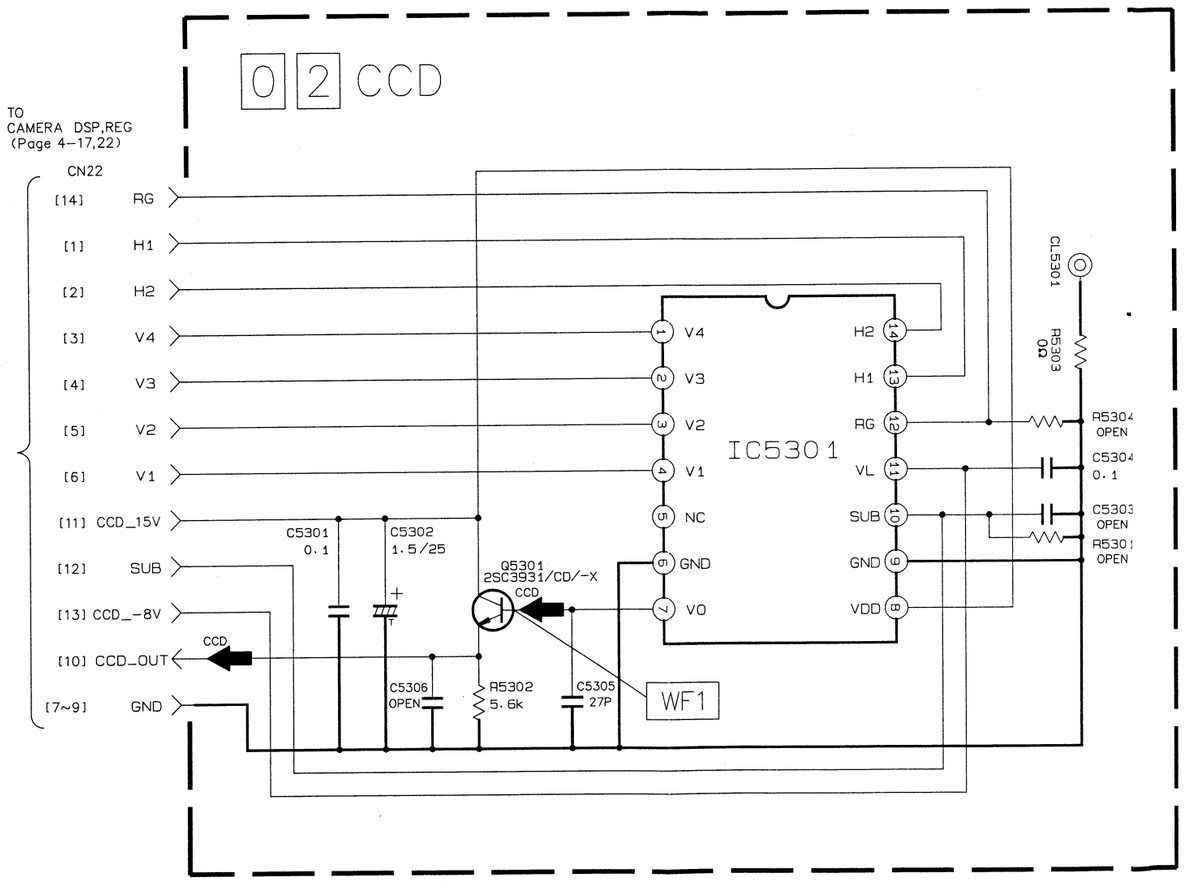
REF. No / MODELS	Q6201 Q6203	R6201 R6203	R6205 R6206	C6201	CN14
GR-SX850	OPEN	OPEN	OPEN	OPEN	OPEN
GR-SX851	USED	USED	USED	USED	USED
GR-SX950	USED	USED	USED	USED	USED

4.11 VF/MTIF AND CCD SCHEMATIC DIAGRAMS

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



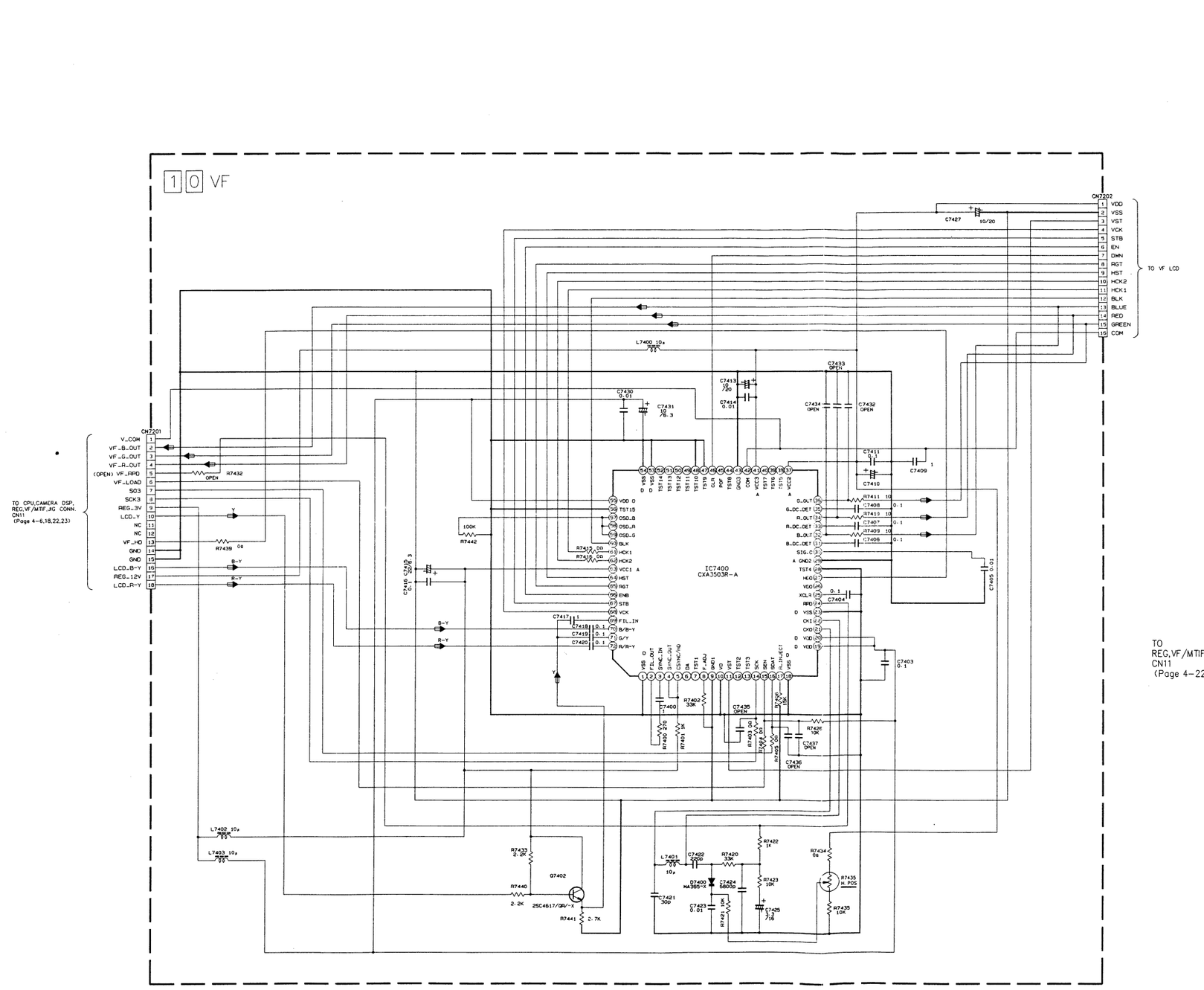
Note: IC5301 is incorporated in the CCD base assembly. When IC5301 needs replacement, replace the CCD base assembly in whole because it cannot be replaced alone.

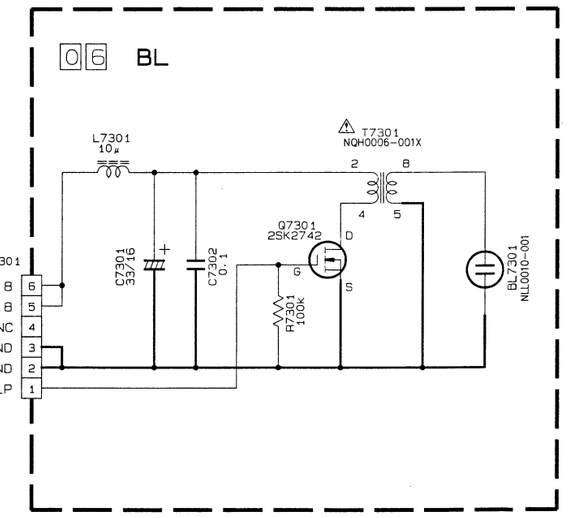


NOTE : For CCD waveform, please refer to page 4-51.

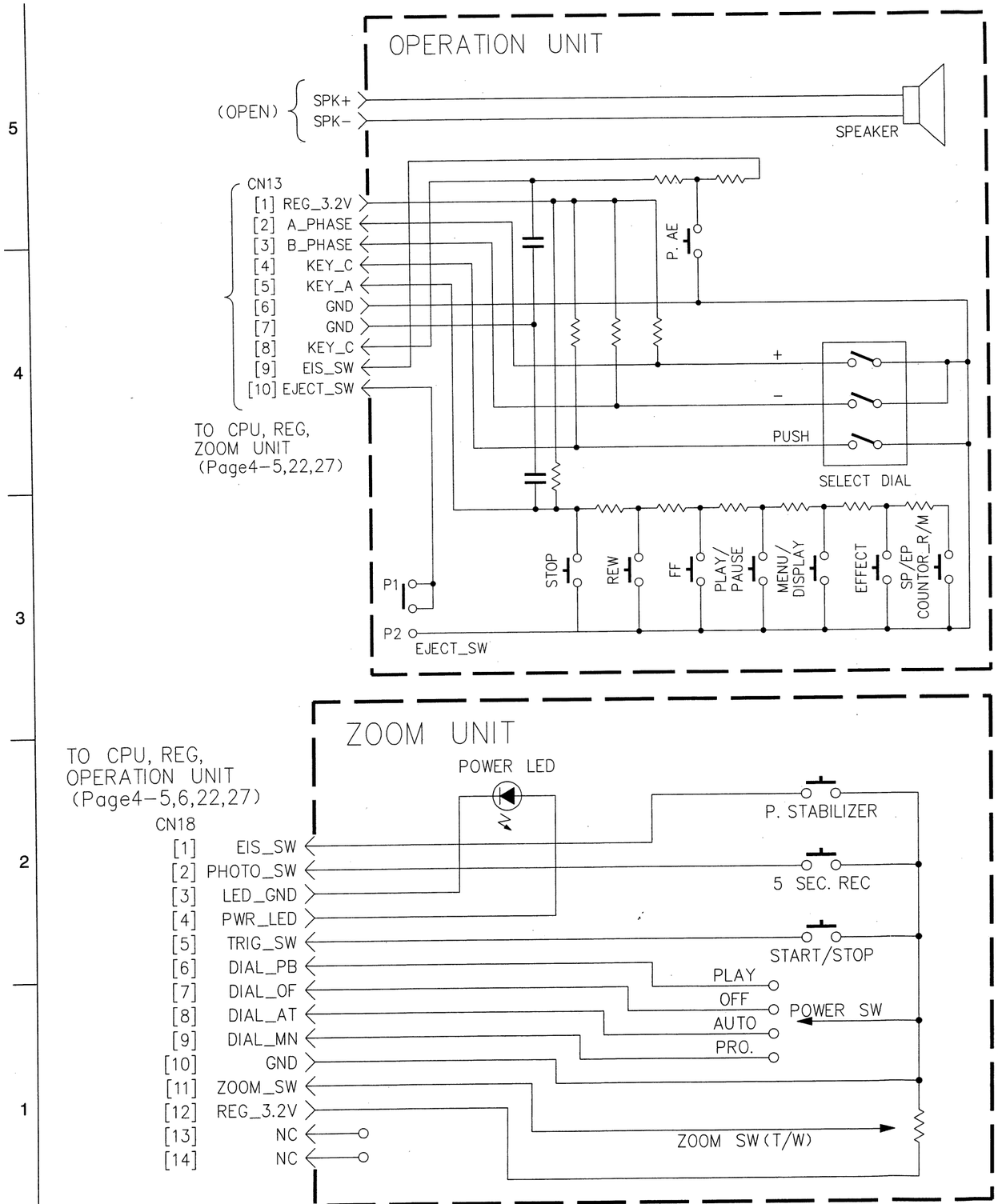
4.12 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM

NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

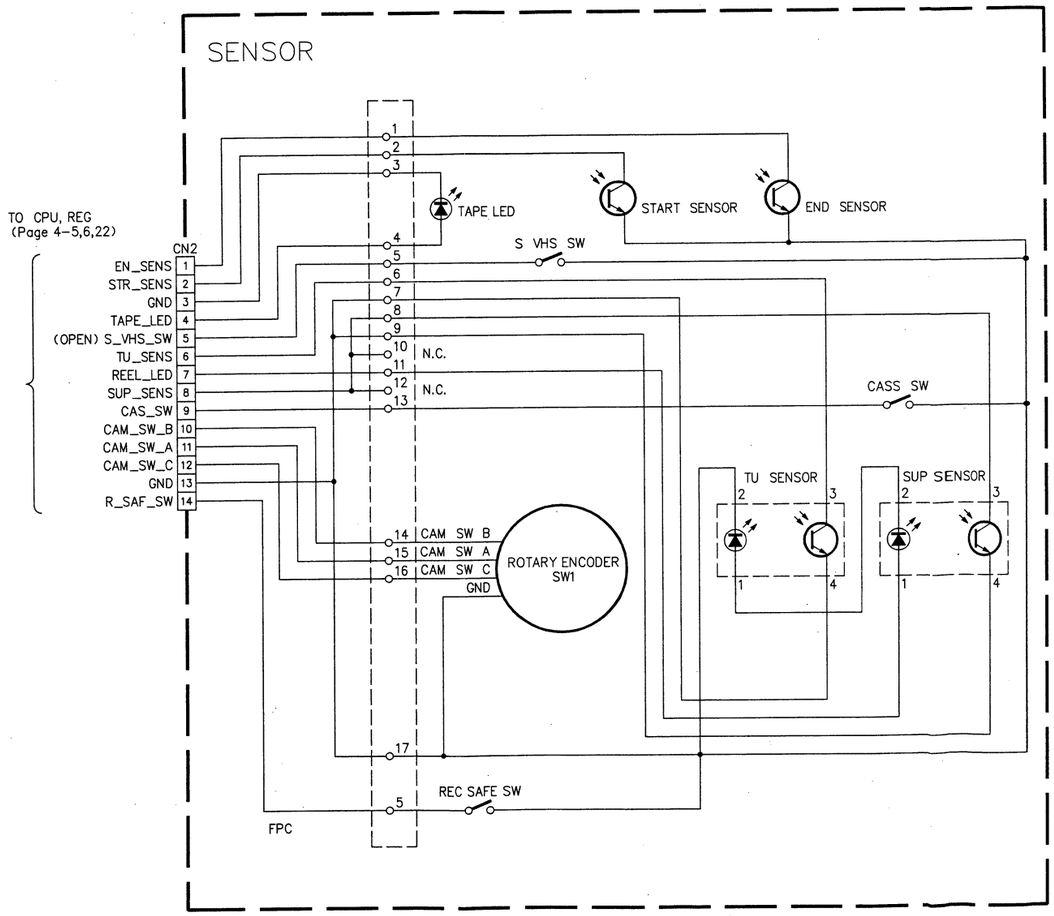




4.13 OPERATION UNIT, ZOOM UNIT AND SENSOR SCHEMATIC DIAGRAMS



NOTE: The schematic diagrams are only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

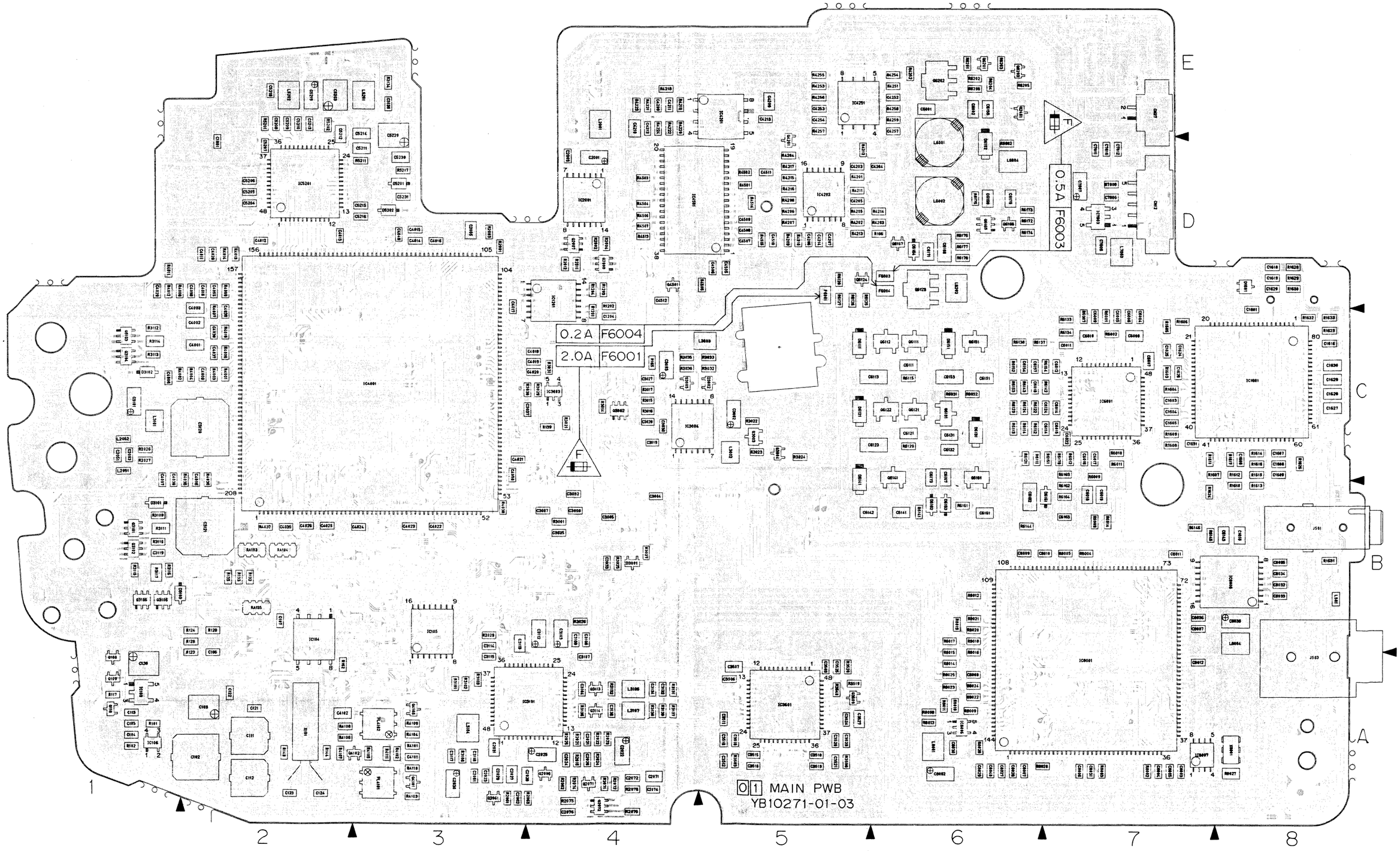


4.14 MAIN CIRCUIT BOARD

CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE.

ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE DÖINCENDE, REMPLACER LE FUSIBLE PAR UN AUTRE DE MEME TYPE ET DE MEME TENSION.

FOIL SIDE (B)



COMPONENT PARTS LOCATION GUIDE (MAIN)

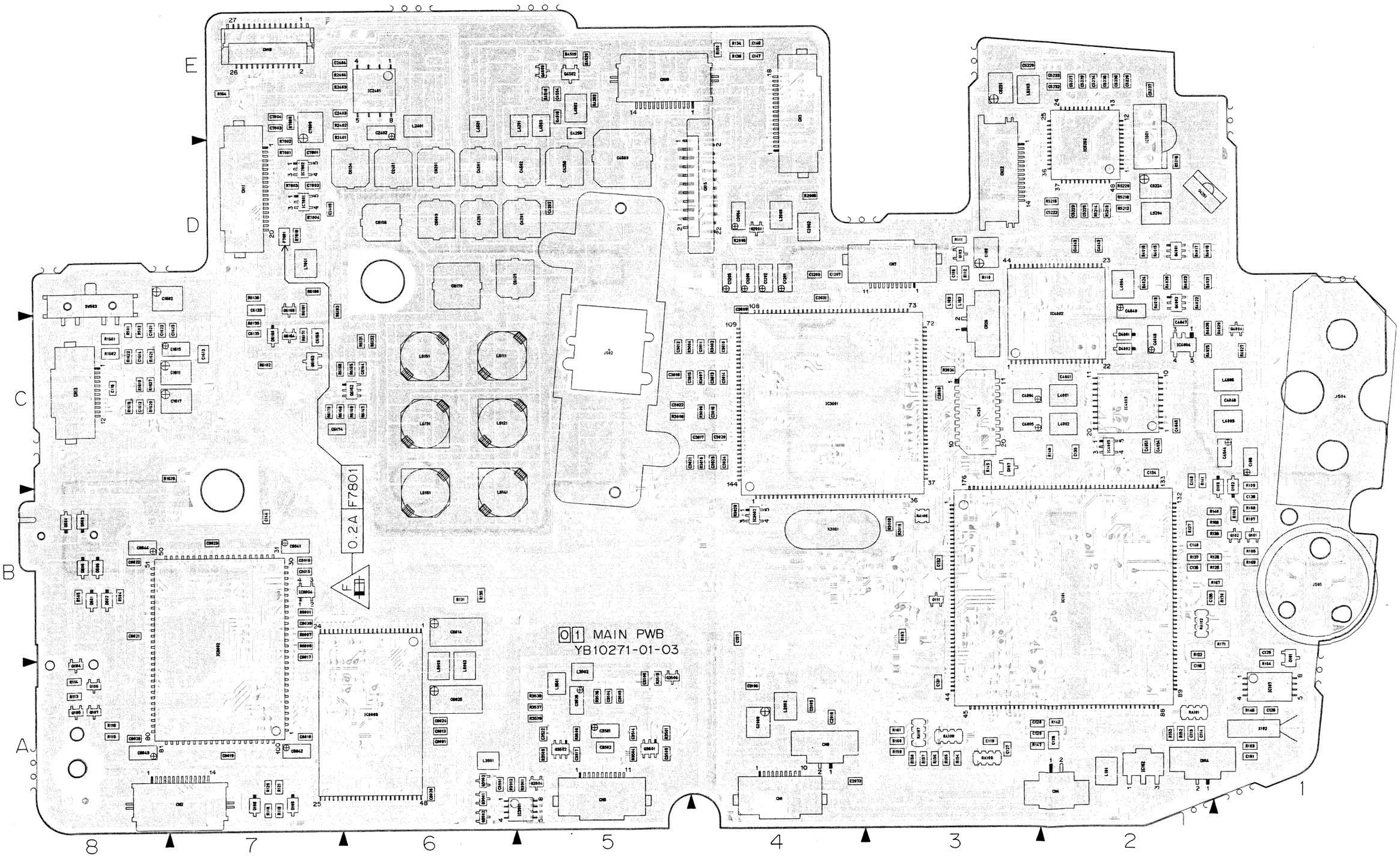
REF.No.	LOCATION
CAPACITOR	
C101	A C 1A
C102	B C 2A
C103	B C 2A
C104	B C 1A
C105	B C 1A
C106	B C 2A
C107	B C 2B
C108	A C 1C
C109	A C 3D
C110	A C 3D
C111	B C 2A
C112	B C 2A
C113	A C 2A
C114	A C 2A
C115	B C 1A
C116	A C 8C
C118	A C 2A
C119	A C 3A
C120	A C 3A
C121	B C 2A
C122	B C 2A
C123	B C 2A
C124	B C 2A
C125	A C 1A
C126	A C 1A
C127	A C 3A
C128	A C 2A
C129	A C 3A
C130	B C 1A
C131	A C 3A
C132	A C 3B
C133	A C 2C
C134	A C 2C
C135	A C 2B
C136	A C 2B
C137	A C 4B
C138	A C 1B
C140	A C 2B
C143	A C 2B
C144	A C 7B
C146	A C 4E
C147	A C 4E
C1201	A C 4D
C1202	A C 4D
C1203	A C 4D
C1204	B C 4C
C1205	A C 4D
C1206	A C 4D
C1207	A C 4D
C1601	B C 8C
C1602	A C 7D
C1603	B C 7C
C1604	B C 7C
C1605	B C 7C
C1606	B C 8C
C1607	B C 8C
C1608	B C 8C
C1609	B C 8C
C1610	B C 8B
C1611	A C 7C
C1612	A C 8C
C1613	A C 7C
C1614	A C 8C
C1615	A C 7C
C1616	B C 8C
C1617	A C 7C
C1618	B C 8D
C1619	B C 8D
C1620	B C 8D
C1621	A C 8C
C1622	A C 8C
C1623	A C 7C
C1624	B C 7C
C1625	B C 7C
C1626	B C 7C
C1627	B C 8C
C1628	B C 8C
C1629	B C 8C
C1630	B C 8C
C1631	B C 7C
C1801	B C 2D
C2001	B C 4D
C2002	A C 4D
C2003	B C 4D
C2004	A C 4D
C2005	B C 3D
C2009	A C 4A
C2010	A C 4A
C2021	B C 4A
C2022	B C 4A
C2023	B C 3A
C2024	B C 4A
C2025	B C 4A
C2026	B C 4A
C2027	B C 3A
C2028	B C 4A
C2029	B C 3A
C2030	B C 3A
C2031	B C 3A
C2051	B C 1C
C2052	B C 1C
C2061	B C 3A
C2062	B C 3A
C2071	B C 4A
C2072	B C 4A
C2073	A C 4A
C2074	B C 4A
C2076	B C 4A
C2401	A C 6D
C2402	A C 6E
C2403	A C 6E
C2404	A C 6E
C2405	A C 7D
C3002	B C 5C
C3003	B C 4C
C3004	B C 4B
C3005	B C 4B
C3006	B C 4B
C3007	B C 4B
C3008	A C 3C
C3009	A C 4D
C3010	A C 4C
C3011	A C 4C
C3012	A C 5C
C3013	A C 4C
C3014	A C 4C
C3015	A C 4C
C3016	A C 4C
C3017	A C 4C
C3018	A C 5C
C3019	B C 4C
C3020	A C 4C
C3021	A C 4C
C3022	A C 5C
C3023	A C 4C
C3024	A C 4C
C3027	B C 4C
C3028	B C 4C
C3031	A C 4D
C3032	B C 4B
C3033	B C 4B
C3035	B C 4B
C3037	B C 3C
C3038	B C 4C
C3101	B C 1C
C3103	B C 4B
C3104	B C 4A
C3105	A C 4A
C3106	A C 4A
C3107	B C 4A
C3108	B C 4B
C3109	B C 4B
C3112	B C 4B
C3113	B C 3B
C3114	B C 3B
C3115	B C 3A
C3117	B C 3A
C3118	B C 3A
C3119	B C 1B
C3120	B C 2C
C3121	B C 2B
C3132	B C 4A
C3134	B C 4A
C3135	B C 3E
C3136	B C 4A
C3501	A C 5A
C3502	A C 5A
C3503	B C 5A
C3504	A C 5A
C3505	A C 5A
C3506	B C 5A
C3507	B C 5A
C3508	A C 5A
C3509	A C 5A
C3510	B C 5A
C3511	B C 5A
C3512	B C 5A
C3513	B C 5A
C3514	A C 5A
C3515	B C 5A
C3516	B C 5A
C3517	A C 5A
C3518	B C 5A
C3519	B C 5A
C3520	B C 5A
C3521	B C 5A
C3522	A C 5A
C3523	B C 5A
C3524	B C 5A
C3525	B C 5A
C3526	A C 5A
C3527	B C 5A
C3901	A C 6A
C4001	B C 2C
C4002	B C 2C
C4003	B C 2C
C4004	A C 3C
C4005	A C 3C
C4006	B C 2B
C4007	B C 1B
C4008	B C 1C
C4009	B C 2C
C4010	B C 2D
C4011	B C 2D
C4012	B C 2D
C4013	B C 2D
C4014	B C 3D
C4015	B C 3D
C4016	B C 3D
C4017	B C 3D
C4018	B C 4C
C4019	B C 4C
C4020	B C 4C
C4021	B C 3C
C4022	B C 3B
C4023	B C 3B
C4024	B C 3B
C4025	B C 2B
C4026	B C 2B
C4028	B C 2D
C4029	B C 1D
C4030	B C 2C
C4034	A C 2C
C4035	B C 2B
C4036	B C 1B
C4037	B C 2C
C4038	B C 2D
C4039	B C 2C
C4040	A C 2C
C4041	A C 2C
C4042	A C 2D
C4043	A C 2D
C4044	A C 1C
C4045	A C 2C
C4046	A C 1C
C4047	A C 2C
C4048	A C 2C
C4049	B C 3D
C4050	B C 3C
C4051	A C 2C
C4055	B C 2D
C4101	B C 3A
C4102	B C 2A
C4201	A C 5D
C4202	A C 5D
C4203	B C 5D
C4204	B C 6D
C4205	B C 5D
C4206	B C 5D
C4207	B C 5D
C4208	B C 4E
C4209	B C 5E
C4210	B C 4E
C4211	B C 4E
C4212	B C 4E
C4213	B C 5E
C4214	B C 5D
C4251	A C 6D
C4252	B C 6E
C4253	B C 5E
C4254	B C 5E
C4255	A C 5E
C4256	A C 5D
C4257	B C 6E
C4501	A C 6D
C4502	A C 5D
C4503	A C 5D
C4504	A C 5E
C4505	B C 5D
C4506	B C 5D
C4507	B C 5D
C4508	B C 5D
C4509	B C 5D
C4510	B C 5D
C4511	B C 5D
C4512	B C 4D
C5203	B C 2E
C5204	B C 2D
C5205	B C 2D
C5206	B C 2D
C5207	B C 2D
C5208	B C 2E
C5209	B C 2E
C5210	B C 2E
C5211	B C 3D
C5212	B C 2E
C5213	B C 2E
C5214	B C 3E
C5215	B C 3D
C5216	B C 3D
C5218	B C 2E
C5219	B C 2E
C5220	A C 3E
C5221	A C 3E
C5222	A C 2D
C5223	A C 2D
C5224	A C 2D
C5225	A C 2D
C5226	A C 2E
C5227	A C 2E
C5228	A C 2E
C5229	B C 3D
C5230	B C 3D
C5231	B C 3D
C5232	A C 2E
C5233	A C 2E
C5234	A C 2E
C5235	A C 2E
C5236	A C 2E
C5237	A C 2E
C6001	B C 6E
C6002	B C 6E
C6003	A C 6D
C6004	B C 7C
C6005	B C 7C
C6006	B C 7C
C6007	B C 7C
C6008	B C 7C
C6009	B C 7C
C6010	B C 7C
C6011	B C 7C
C6012	B C 7C
C6013	B C 6C
C6014	B C 7C
C6015	B C 7C
C6016	B C 7C
C6017	B C 7C
C6018	B C 7B
C6019	B C 7B
C6022	B C 7C
C6111	B C 6C
C6113	B C 6C
C6114	B C 7C
C6121	B C 6C
C6123	B C 6C
C6124	B C 7C
C6125	A C 5D
C6131	B C 6C
C6132	B C 6C
C6133	A C 7D
C6134	A C 6D
C6135	A C 7C
C6141	B C 6B
C6142	B C 5B
C6143	B C 8B
C6151	B C 6C
C6153	B C 6C
C6154	B C 6C
C6155	B C 6E
C6156	A C 6D
C6157	B C 6C
C6161	B C 6B
C6162	B C 6B
C6163	B C 7B
C6164	A C 6C
C6165	A C 7C
C6167	B C 6C
C6168	B C 6D
C6169	B C 6D
C6170	A C 6D
C6171	B C 6D
C6173	B C 6C
C6174	A C 7C
C6175	B C 6D
C6201	A C 6D
C7801	A C 7D
C7802	A C 7D
C7803	A C 7E
C7804	A C 7E
C7805	B C 7D
C7806	B C 7D
C7807	B C 7D
C7809	A C 7E
C7810	B C 7D
C7811	B C 7D
C7812	B C 7D
C8001	A C 6A
C8002	B C 6A
C8003	B C 7A
C8004	B C 7A
C8005	B C 7A
C8006	B C 7A
C8007	B C 6A
C8008	B C 6A
C8009	B C 6B
C8010	B C 6B
C8011	B C 7B
C8012	B C 7A
C8013	A C 6A
C8014	A C 6B
C8015	A C 7B
C8016	A C 7B
C8017	A C 7B
C8018	A C 7A
C8019	A C 7A
C8020	A C 8A
C8021	A C 8B
C8022	A C 8B
C8023	A C 7B
C8024	A C 6A
C8025	A C 6A
C8026	A C 6A
C8027	B C 6A
C8028	B C 6A
C8029	B C 6A
C8030	B C 6A
C8031	B C 7A
C8032	B C 8B
C8033	B C 8B
C8034	B C 8B
C8035	B C 8B
C8036	B C 7B
C8037	B C 7B
C8038	B C 8B
C8039	A C 7B
C8040	B C 6A
C8041	A C 7B
C8042	A C 7A
C8043	A C 8A
C8044	A C 8B
CONNECTOR	
CN1	A C 4A
CN2	A C 8A
CN3	A C 4D
CN4	A C 2A
CN5	A C 5A
CN7	A C 3D
CN8	A C 4A
CN11	A C 7D
CN12	B C 7D
CN13	A C 8C
CN14	A C 2A
CN15	A C 4D
CN16	A C 7E
CN18	A C 4E
CN22	A C 3D
CN25	A C 3C
CN26	A C 3C
CN27	B C 7E
DIODE	
D101	A C 1A
D102	A C 1B
D103	A C 1B
D105	A C 7A
D106	A C 7A
D107	A C 3C
D501	A C 8B
D502	A C 8B
D503	A C 8B
D504	A C 8B
D505	A C 8B
D506	A C 8B
D1601	B C 8D
D3001	B C 4B
D3002	B C 5C
D3101	B C 1B
D3102	B C 1C
D3103	B C 1B
D4001	A C 2C
D4002	A C 2C
D5201	B C 3D
D5202	B C 3D
D6111	B C 5C
D6121	B C 5C
D6131	B C 6C
D6141	B C 5C
D6151	B C 6C
D6152	B C 6D
D6161	B C 7B
D6162	B C 6B
D6163	B C 6B
D6164	B C 6D
D6165	A C 7C
IC	
IC101	A C 2B
IC102	A C 2A
IC103	B C 1A
IC104	B C 2B
IC105	B C 3B
IC106	B C 1A
IC107	A C 1A
IC1201	B C 4D
IC1601	B C 8C
IC1801	A D 2D
IC2001	B C 4D
IC2401	A C 6E
IC3001	A C 4C
IC3002	A C 4B
IC3003	B C 4C
IC3004	B C 4C
IC3101	B C 4A
IC3501	B C 5A
IC3901	A C 5A
IC4001	B C 3C
IC4002	A C 2C
IC4003	A C 2C
IC4004	A C 2C
IC4005	A C 2C
IC4201	B C 5E
IC4202	B C 5D
IC4251	B C 5E
IC4501	B C 4D
IC5201	B C 2D
IC5202	A C 2D
IC6001	B C 7C
IC7801	A C 7D
IC7802	A C 7D
IC7803	B C 7D
IC8001	B C 7A
IC8002	A C 7B
IC8003	A C 6A
IC8004	A C 7B
IC8005	B C 6A
IC8006	B C 8B
IC8007	B C 7A
COIL	
L101	A C 2A
L102	A C 3D
L103	A C 3D
L501	B C 8B
L2001	B C 4E
L2002	A C 4A
L2003	A C 4D
L2051	B C 1C
L2052	B C 1C
L2401	A C 6E
L3002	B C 5C
L3003	B C 5C
L3101	B C 1C
L3104	B C 3A
L3106	B C 4A
L3107	B C 4A
L3501	A C 5A
L3502	A C 5A
L3901	A C 6A
L4001	A C 2C
L4002	A C 2C
L4003	A C 1C
L4004	A C 2D
L4005	A C 1C
L4201	A C 5E
L4501	A C 6E
L4502	A C 5E
L4503	A C 5E
L5201	B C 3E
L5202	B C 2E
L5203	A C 3E
L5204	A C 2D
L6001	B C 6D
L6002	B C 6D
L6004	B C 6D
L6111	A C 6C
L6121	A C 6C
L6131	A C 6C
L6141	A C 6B
L6151	A C 6C
L6161	A C 6B
L6202	B C 6D
L7801	A C 7D
L7803	B C 7D
L8001	B C 6A
L8002	A C 6A
L8003	A C 6A
L8004	B C 8B
TRANSISTOR	
Q101	A C 1B
Q102	A C 1B
Q103	A C 3D
Q104	A C 8A
Q105	A C 8A
Q106	A C 8A
Q107	A C 8A
Q108	B C 1A
Q109	B C 1A
Q111	B C 1A
Q1101	A C 3B
Q2001	A C 4D
Q2006	B C 4A
Q2007	B C 4D
Q2008	B C 4D
Q2011	B C 3A
Q2012	B C 4A
Q2013	B C 4A
Q2401	B C 6E
Q3021	B C 4C
Q3031	B C 5C
Q3041	B C 4C
Q3051	B C 1B

REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION		
Q3102	B	C	1B	R138	A	C	1B	R2024	B	C	4A	R4003	B	C	2C	R4518	A	C	5E	R6931	B	C	6C
Q3103	B	C	1C	R139	B	C	4C	R2025	B	C	4A	R4004	B	C	2C	R4519	A	C	5E	R6932	B	C	6C
Q3104	B	C	1C	R140	A	C	1B	R2026	B	C	1C	R4006	B	C	2C	R4520	A	C	5E	R7801	A	C	7D
Q3105	B	C	1B	R141	A	C	2B	R2027	B	C	1C	R4007	B	C	2C	R5201	B	C	2E	R7802	A	C	7D
Q3106	B	C	1B	R142	A	C	2A	R2029	B	C	3B	R4008	B	C	1D	R5202	B	C	2E	R7803	A	C	7D
Q3113	B	C	4A	R143	B	C	2A	R2061	B	C	3A	R4009	B	C	2D	R5211	B	C	3D	R7804	A	C	7D
Q3114	B	C	4A	R144	B	C	2A	R2062	B	C	4A	R4010	B	C	2C	R5212	A	C	2D	R7808	B	C	7D
Q3501	A	C	5A	R145	A	C	3C	R2063	B	C	4A	R4011	B	C	1D	R5213	A	C	2D	R7809	A	C	7E
Q3502	A	C	5A	R146	A	C	1A	R2071	B	C	4A	R4012	B	C	1D	R5214	A	C	2D	R7810	A	C	7D
Q3506	A	C	5A	R147	A	C	3A	R2072	B	C	4A	R4013	B	C	2D	R5215	A	C	2D	R8001	A	C	7B
Q3509	B	C	5A	R148	A	C	2C	R2073	B	C	4A	R4014	B	C	2D	R5216	A	C	2D	R8002	B	C	7A
Q3901	A	C	6A	R150	A	C	4E	R2074	B	C	4A	R4015	A	C	2D	R5217	B	C	3D	R8003	B	C	7A
Q3902	A	C	6A	R152	A	C	2A	R2075	B	C	4A	R4016	A	C	2D	R5218	A	C	2D	R8004	B	C	7B
Q3903	A	C	6A	R153	A	C	2A	R2076	B	C	4A	R4017	A	C	2D	R5220	A	C	2D	R8005	B	C	7B
Q3904	A	C	5A	R154	A	C	3A	R2401	A	C	6E	R4018	A	C	2D	R6001	B	C	7C	R8006	A	C	7B
Q4001	A	C	2D	R155	A	C	3A	R2402	A	C	6E	R4019	A	C	2D	R6002	B	C	7C	R8007	A	C	7B
Q4002	A	C	2D	R156	A	C	3A	R2403	A	C	6E	R4020	A	C	2D	R6009	B	C	7C	R8008	B	C	6A
Q4004	A	C	1C	R157	A	C	3A	R2404	A	C	6E	R4021	A	C	2D	R6010	B	C	7C	R8009	B	C	6A
Q4101	B	C	3A	R158	A	C	3A	R3001	B	C	4B	R4022	A	C	2D	R6011	B	C	7C	R8010	B	C	6A
Q4102	B	C	3A	R159	A	C	3A	R3002	A	C	4C	R4023	A	C	2D	R6012	B	C	7C	R8011	B	C	6A
Q4103	B	C	3A	R160	A	C	3A	R3004	A	C	4C	R4024	A	C	2D	R6111	B	C	6C	R8012	B	C	6B
Q4201	B	C	5D	R161	A	C	3A	R3006	A	C	4C	R4025	A	C	2C	R6112	B	C	6C	R8013	B	C	6A
Q4251	A	D	2D	R162	B	C	2A	R3007	A	C	4C	R4026	A	C	2C	R6113	B	C	6C	R8014	B	C	6A
Q4501	B	C	4D	R163	A	C	3B	R3008	A	C	5C	R4027	A	C	1C	R6114	B	C	6C	R8015	B	C	6B
Q4502	A	C	5E	R164	A	C	7E	R3009	A	C	3B	R4029	A	C	1C	R6115	B	C	6C	R8016	B	C	6B
Q4503	A	C	5E	R165	B	C	4C	R3010	A	C	3B	R4035	B	C	2B	R6121	B	C	6C	R8017	B	C	6B
Q6111	B	C	6C	R166	B	C	6D	R3014	B	C	4C	R4036	B	C	2B	R6122	B	C	6C	R8018	B	C	6B
Q6112	B	C	6C	R167	A	C	1B	R3015	B	C	4C	R4037	B	C	2B	R6123	B	C	6C	R8019	B	C	6B
Q6121	B	C	6C	R168	A	C	1B	R3016	B	C	4C	R4038	B	C	3B	R6124	B	C	6C	R8020	B	C	6B
Q6122	B	C	6C	R169	A	C	1B	R3017	B	C	4C	R4101	B	C	3A	R6125	B	C	5D	R8021	B	C	6B
Q6123	B	C	6D	R170	A	C	1B	R3018	A	C	4C	R4102	B	C	3A	R6126	B	C	5D	R8022	B	C	6A
Q6124	B	C	5D	R171	A	C	1B	R3021	B	C	4C	R4103	B	C	3A	R6127	B	C	5D	R8023	B	C	6A
Q6131	B	C	6C	R501	A	C	8C	R3022	B	C	5C	R4104	B	C	3A	R6128	B	C	5D	R8024	B	C	6A
Q6141	B	C	6C	R502	A	C	8C	R3023	B	C	5C	R4105	B	C	3A	R6129	B	C	6C	R8025	B	C	6A
Q6151	B	C	6C	R504	A	C	8B	R3024	B	C	5C	R4106	B	C	2A	R6131	A	C	6C	R8026	B	C	6A
Q6161	B	C	6C	R505	A	C	8B	R3025	B	C	4B	R4107	B	C	2A	R6132	A	C	6C	R8027	B	C	8A
Q6162	A	C	6C	R1201	B	C	4C	R3026	B	C	4B	R4108	B	C	2A	R6133	B	C	7C	R8028	B	C	6A
Q6163	A	C	7C	R1202	B	C	4D	R3027	B	C	4B	R4109	B	C	3A	R6134	B	C	7C	RA101	A	C	2A
Q6164	A	C	7C	R1203	B	C	4D	R3028	A	C	4B	R4110	B	C	3A	R6135	A	C	7C	RA102	A	C	2B
Q6165	B	C	6D	R1204	B	C	4D	R3029	B	C	4C	R4111	B	C	3A	R6136	A	C	7D	RA103	B	C	2B
Q6166	B	C	6D	R1601	A	C	8C	R3030	B	C	3C	R4201	B	C	5D	R6137	B	C	6C	RA104	B	C	2B
Q6167	B	C	6D	R1602	A	C	8C	R3031	B	C	4C	R4202	B	C	5D	R6138	B	C	6C	RA105	B	C	2B
Q6168	A	C	7D	R1603	B	C	7C	R3032	B	C	5C	R4203	B	C	6D	R6141	B	C	6B	RA106	A	C	3B
Q6201	B	C	6E	R1604	B	C	7C	R3033	B	C	5C	R4204	B	C	5D	R6142	B	C	7C	RA107	A	C	3A
Q6202	B	C	6E	R1605	B	C	7C	R3034	A	C	3C	R4205	B	C	5D	R6143	B	C	6C	RA108	A	C	3A
Q6203	B	C	6E	R1606	B	C	7C	R3035	B	C	4C	R4206	B	C	5D	R6144	B	C	6B	RA109	A	C	3A
				R1607	B	C	7C	R3036	B	C	4C	R4207	B	C	5D	R6145	B	C	7B				
RESISTOR				R1608	B	C	7C	R3101	B	C	3A	R4208	B	C	5D	R6146	B	C	7B	**TEST POINT**			
R101	B	C	1A	R1609	B	C	7C	R3102	B	C	3A	R4209	B	C	5D	R6151	B	C	7C	TP101	A	C	2C
R102	B	C	1A	R1610	B	C	8B	R3103	B	C	3A	R4210	B	C	5D	R6152	B	C	6C	TP102	B	C	2B
R103	A	C	1A	R1611	B	C	7C	R3108	B	C	3A	R4211	B	C	5D	R6153	B	C	6C	TP103	A	C	2A
R104	A	C	1A	R1612	B	C	8C	R3109	B	C	1B	R4212	B	C	5D	R6154	B	C	7C				
R105	A	C	1B	R1613	B	C	8B	R3110	B	C	1B	R4213	B	C	5D	R6161	B	C	6B	**OTHER**			
R106	A	C	1B	R1614	B	C	8C	R3111	B	C	1B	R4214	B	C	6D	R6162	B	C	7B	F6001	B	C	5D
R107	A	C	1B	R1615	B	C	8C	R3112	B	C	1C	R4215	B	C	5D	R6163	B	C	7C	F6003	B	C	6D
R108	A	C	1B	R1616	B	C	8C	R3113	B	C	1C	R4216	B	C	5D	R6164	B	C	7B	F6004	B	C	6D
R109	A	C	1B	R1617	B	C	8C	R3114	B	C	1C	R4217	B	C	5D	R6165	A	C	6C	F7801	A	C	7D
R110	A	C	3D	R1618	A	C	8C	R3115	B	C	1B	R4218	B	C	4E	R6166	A	C	6C	FL4101	B	C	3A
R111	A	C	3D	R1619	A	C	8C	R3116	B	C	1B	R4219	B	C	4E	R6167	A	C	6C	FL4102	B	C	3A
R112	A	C	3D	R1620	A	C	8C	R3117	B	C	1B	R4220	B	C	4E	R6168	A	C	6C	J501	A	D	8B
R113	A	C	8A	R1621	A	C	8C	R3131	B	C	4A	R4221	B	C	4E	R6169	A	C	6C	J502	A	D	5C
R114	A	C	8A	R1622	A	C	8C	R3132	B	C	4A	R4222	B	C	4E	R6170	A	C	7C	J503	A	D	8A
R115	A	C	8A	R1623	B	C	8C	R3134	B	C	3E	R4223	B	C	4E	R6171	A	C	7C	J504	A	D	1C
R116	A	C	8A	R1624	B	C	7B	R3135	B	C	4A	R4224	B	C	4E	R6172	B	C	6D	J505	A	D	1B
R117	B	C	1A	R1625	B	C	8C	R3136	B	C	4A	R4251	B	C	6E	R6173	B	C	6D	SW503	A	C	8D
R118	A	C	7A	R1626	A	C	7C	R3137	B	C	4A	R4252	B	C	6E	R6174	B	C	6D	X101	B	C	2A
R119	A	C	7A	R1627	A	C	8C	R3138	B	C	4A	R4253	B	C	5E	R6175	B	C	6D	X102	A	C	1A
R120	A	C	7A	R1628	B	C	8D	R3501	A	C	5A	R4254	B	C	6E	R6176	B	C	6D	X3001	A	D	4B
R121	A	C	7A	R1629	B	C	8D	R3503	B	C	5A	R4255	B	C	5E	R6177	B	C	6D	X8001	B	C	8A
R122	A	C	2A	R1630	B	C	8D	R3504	A	C	5A	R4256	B	C	5E	R6178	B	C	6D				
R123	B	C	2A	R1631	B	C	8B	R3506	A	C	5A	R4257	B	C	5E	R6179	B	C	7C				
R124	B	C	2B	R1632	B	C	8C	R3508	B	C	5A	R4258	B	C	6E	R6180	A	C	7D				
R125	A	C	1B	R1633	B	C	8C	R3509	A	C	5A	R4259	B	C	6E	R6181	A	C	7D				
R126	A	C	1B	R2001	B	C	3D	R3515	A	C	5A	R4262	A	C	5E	R6182	A	C	7C				
R127	A	C	2B	R2002	B	C	4D	R3519	B	C	5A	R4501	B	C	5D	R6183	A	C	7D				
R128	B	C	2B	R2003	B	C	3D	R3520	B	C	5A	R4502	B	C	5D	R6201	B	C	6E				
R129	B	C	2B	R2004	B	C	4D	R3536	A	C	5A	R4503	B	C	4D	R6202	B	C	6E				
R130	A	C	6B	R2005	A	C	4D	R3537	A	C	5A	R4504	B	C	4D	R6203	B	C	6E				
R131	A	C	6B	R2006	A	C	4D	R3538	A	C	5A	R4505	B	C	5D	R6204	B	C	6E				
R132	B	C	2B	R2011	B	C	4D	R3539	A	C	5A	R4506	B	C	4D	R6205	B	C	6E				
R133	B	C	2B	R2012	B	C	4D	R3540	B	C	5A	R4507	B	C	4D	R6206	B	C	6E				
R134	A	C	4E	R2016	B	C	4A	R3901	A	C	5A	R4513	B	C	4D	R6902	B	C	6D				
R135	B	C	2B	R2021	B	C	4A	R3902	A	C	6A	R4514	B	C	5D	R6903	B	C	7B				
R136	A	C	4E	R2022	B	C	4A	R4001	B	C	2C	R4515	B	C	5D	R6907	B	C	7C				
R137	A	C	2B	R2023	B	C	4A	R4002	B	C	1C	R4516	A	C	5E	R6914	B	C	7B				

CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE.

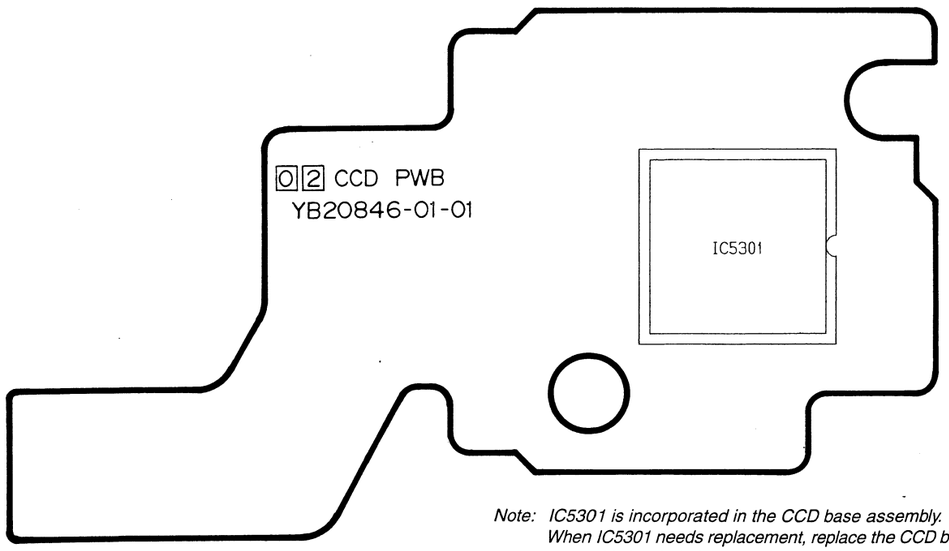
ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE DŌINCENDE, REMPLACER LE FUSIBLE PAR UN AUTRE DE MEME TYPE ET DE MEME TENSION.

COMPONENT SIDE (A)



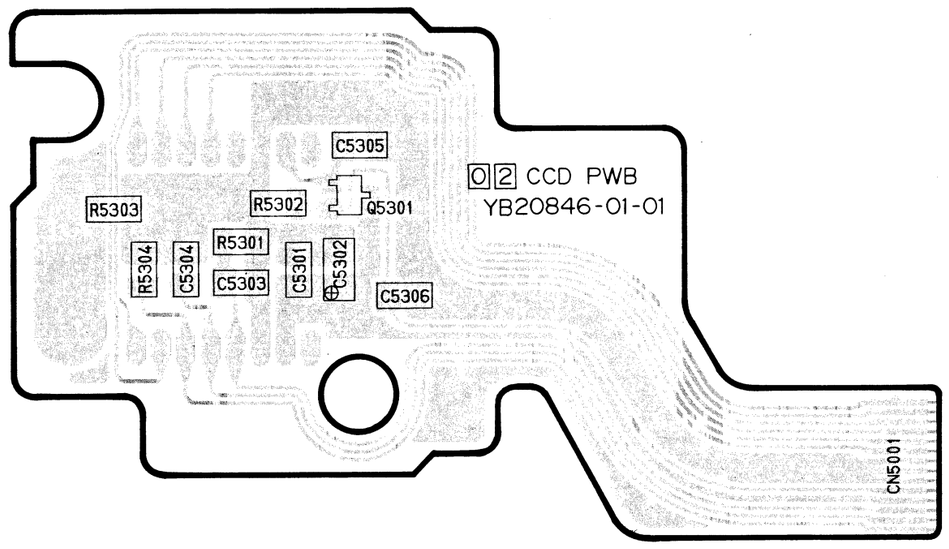
4.15 CCD CIRCUIT BOARD

FOIL SIDE (B)



Note: IC5301 is incorporated in the CCD base assembly. When IC5301 needs replacement, replace the CCD base assembly in whole because it cannot be replaced alone.

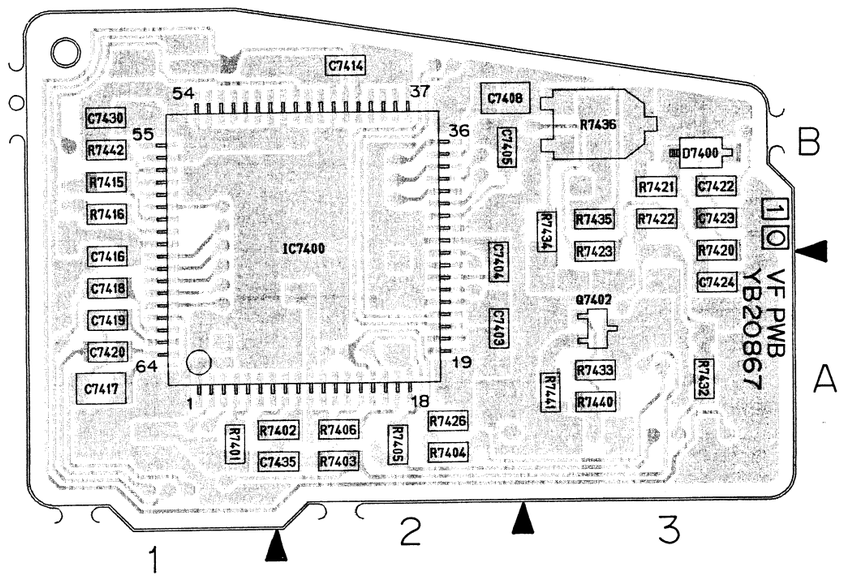
COMPONENT SIDE (A)



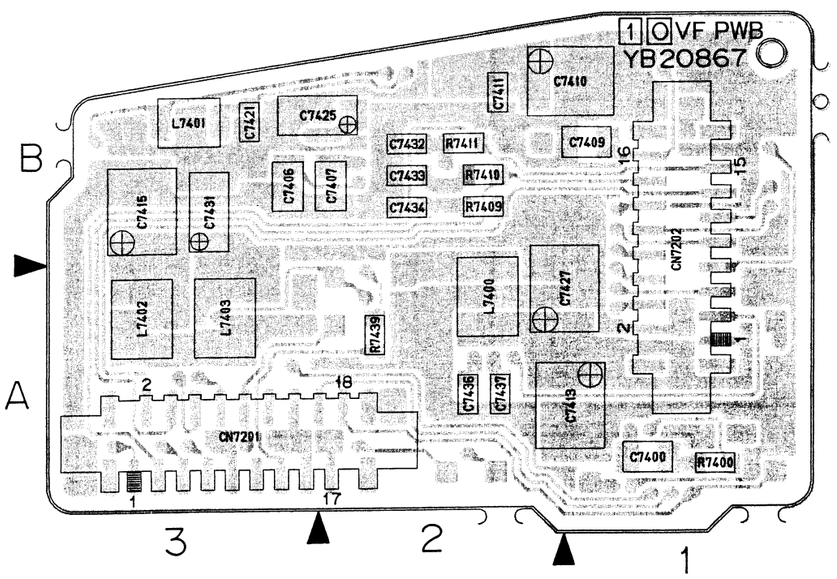
4.16 ELECTRONIC VIEWFINDER CIRCUT BOARD

<VF>

FOIL SIDE (B)

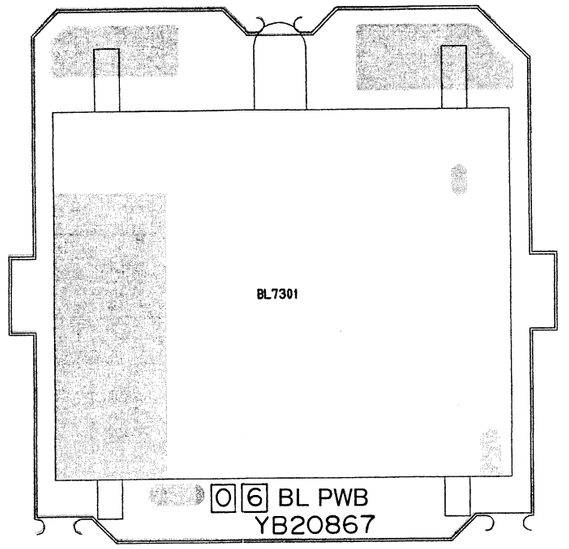


COMPONENT SIDE (A)

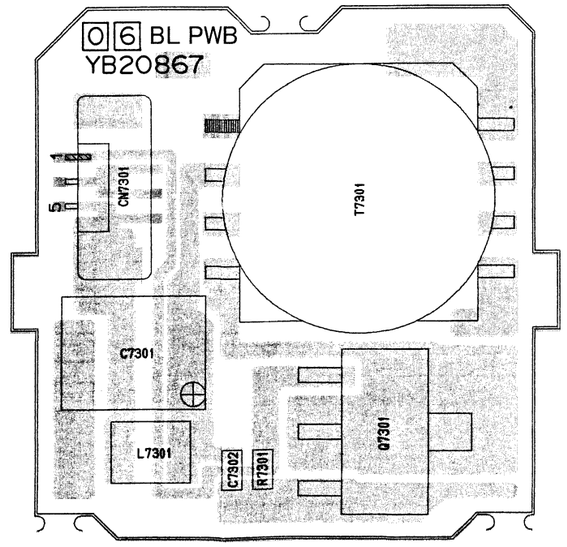


<BL>

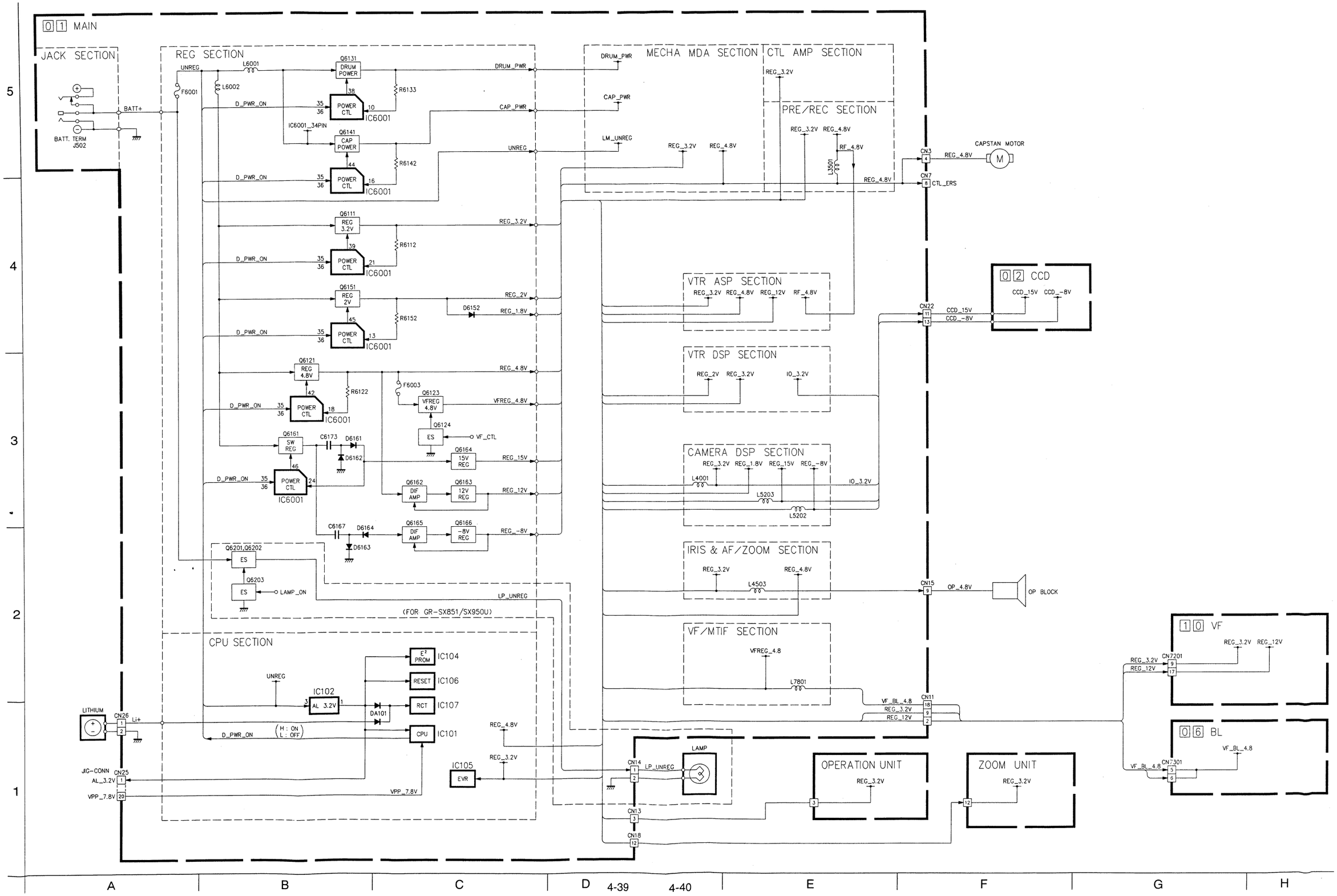
FOIL SIDE (B)



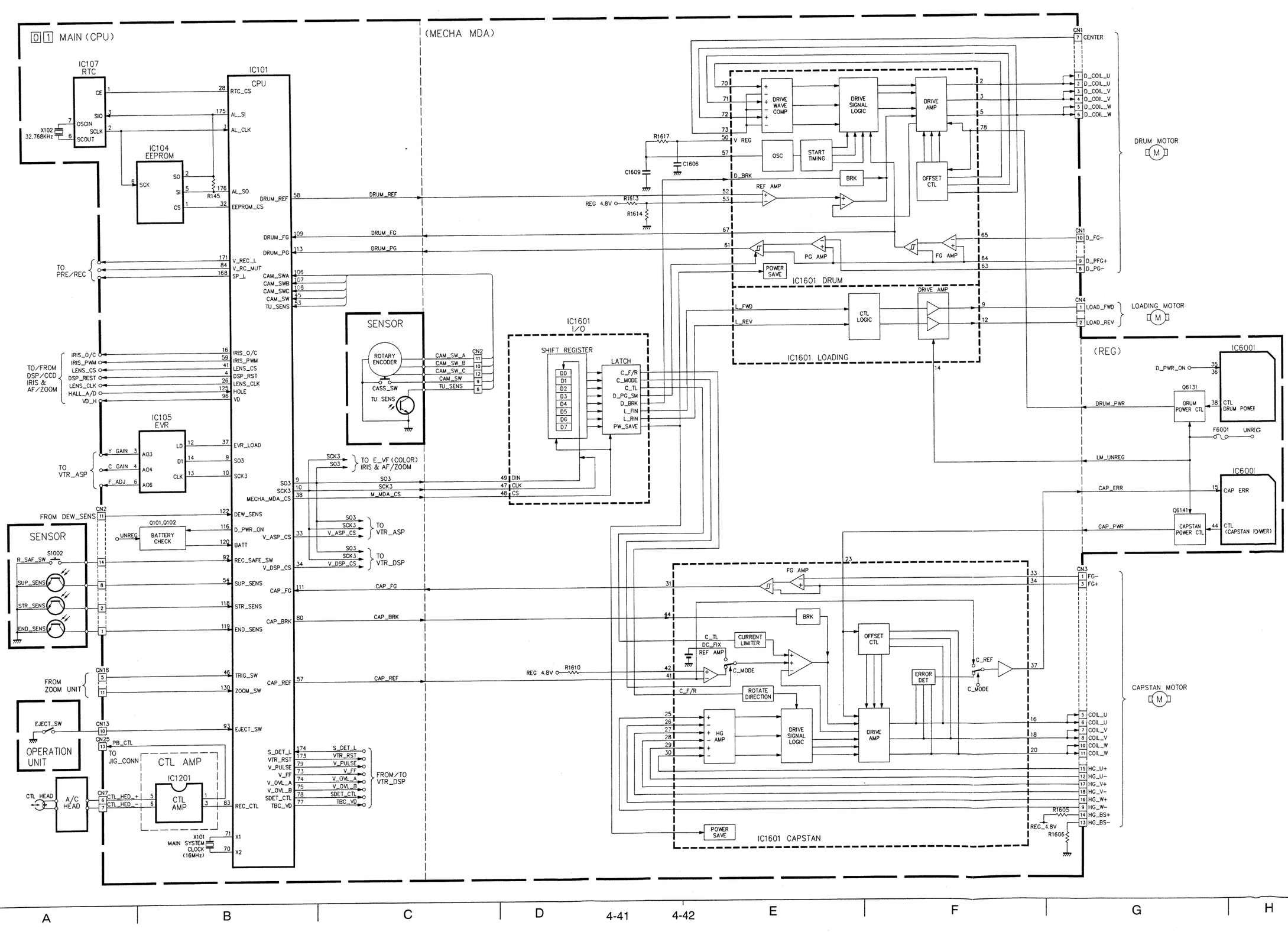
COMPONENT SIDE (A)



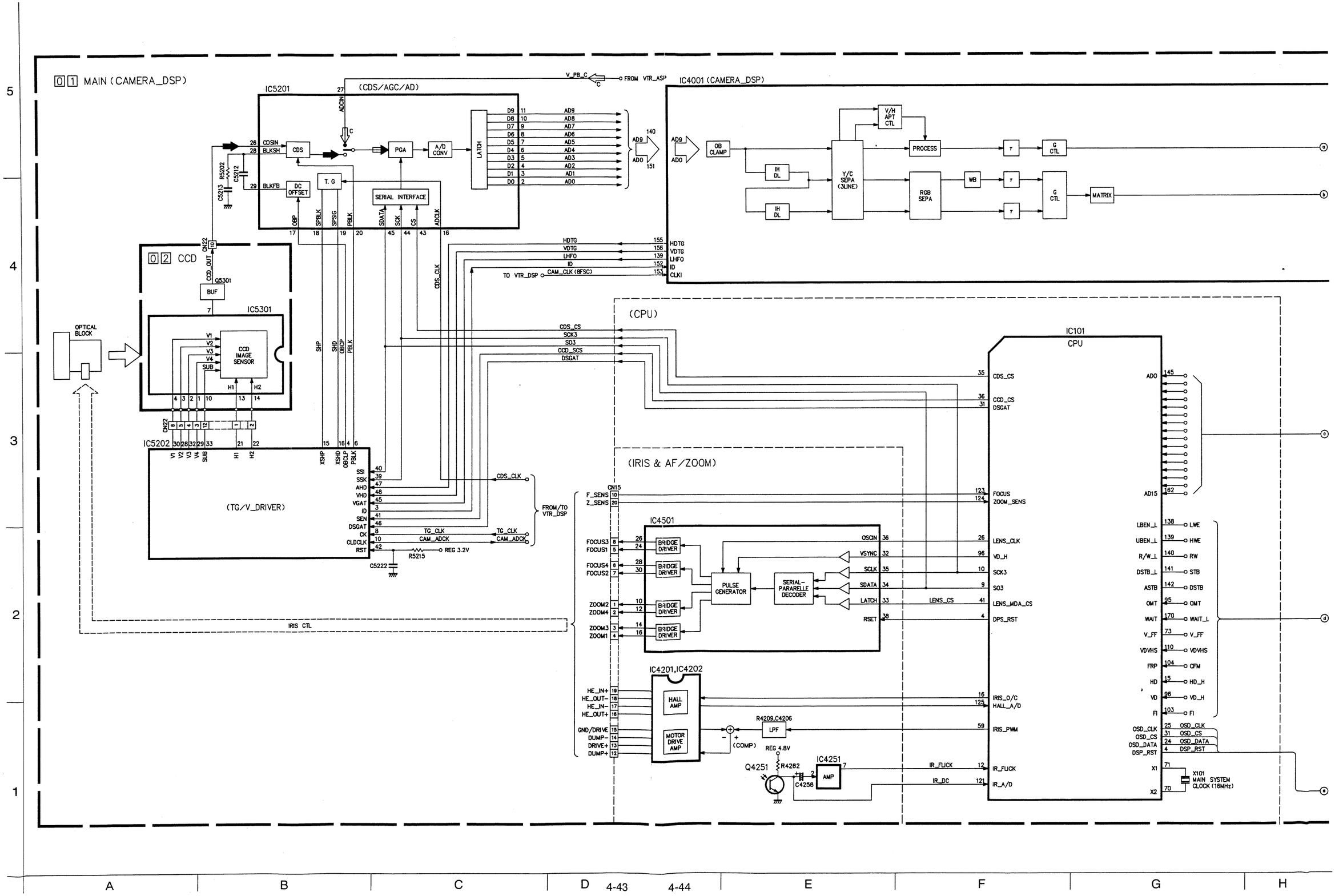
4.17 POWER SYSTEM BLOCK DIAGRAM



4.18 CPU/MDA BLOCK DIAGRAM



4.19 CAMERA BLOCK DIAGRAM



(CAMERA_DSP)

IC4001

VTR_DSP CONTROL INTERFACE

D/A CONV
D/A CONV
D/A CONV

Y
B-Y
B-Y

BUF
BUF
BUF
BUF
BUF

CLAMP
CLAMP

MOD
MOD

LPF

SUB CARRIER MODULE

LIM

BLK

162 YOUT → Q4001 2 BUF 6 → CAM_Y
166 COUT → Q4001 5 BUF 3 → CAM_C
TO VTR_ASP

175 Y2OUT → (NOT USED)
167 RYOUT → (NOT USED)
176 BYOUT → (NOT USED)

AD0 … AD15 → 7 BUS0 … 25 BUS15

LWE → 2 LBEN
HWE → 4 UBEN
RW → 5 RW
STB → 6 ASTB
DSTB → 1 DSTB
OMT ← 36 OMT
WAIT ← 37 BUSY
V_FF ← 40 VFF
VDVHS ← 208 VREF0
CFM ← 31 FRP
HD_H ← 28 HDCPU
VD_H ← 29 VDCPU
FI ← 30 FLDCPU

INTERFACE

185 CLR ← FROM CPU DSP_RST

SCBLKO 59 SCBLK
CSYNCO 78 CSYNC
CBLKO 80 CBLK
DCKO 76 DICK
NRYBYO 77 NRYBO
→ TO VTR_ASP

DYO0 75
DYO7 66
DCO0 65
DCO3 62
DYI0 81
DYI7 90
DCI0 91
DCI3 94
→ FROM/TO VTR_DSP

NRYBYI 95 NRYBYI
DCKI 96 DOCK
CLKI 153 CAM_CLK

IC4003 (OSD)

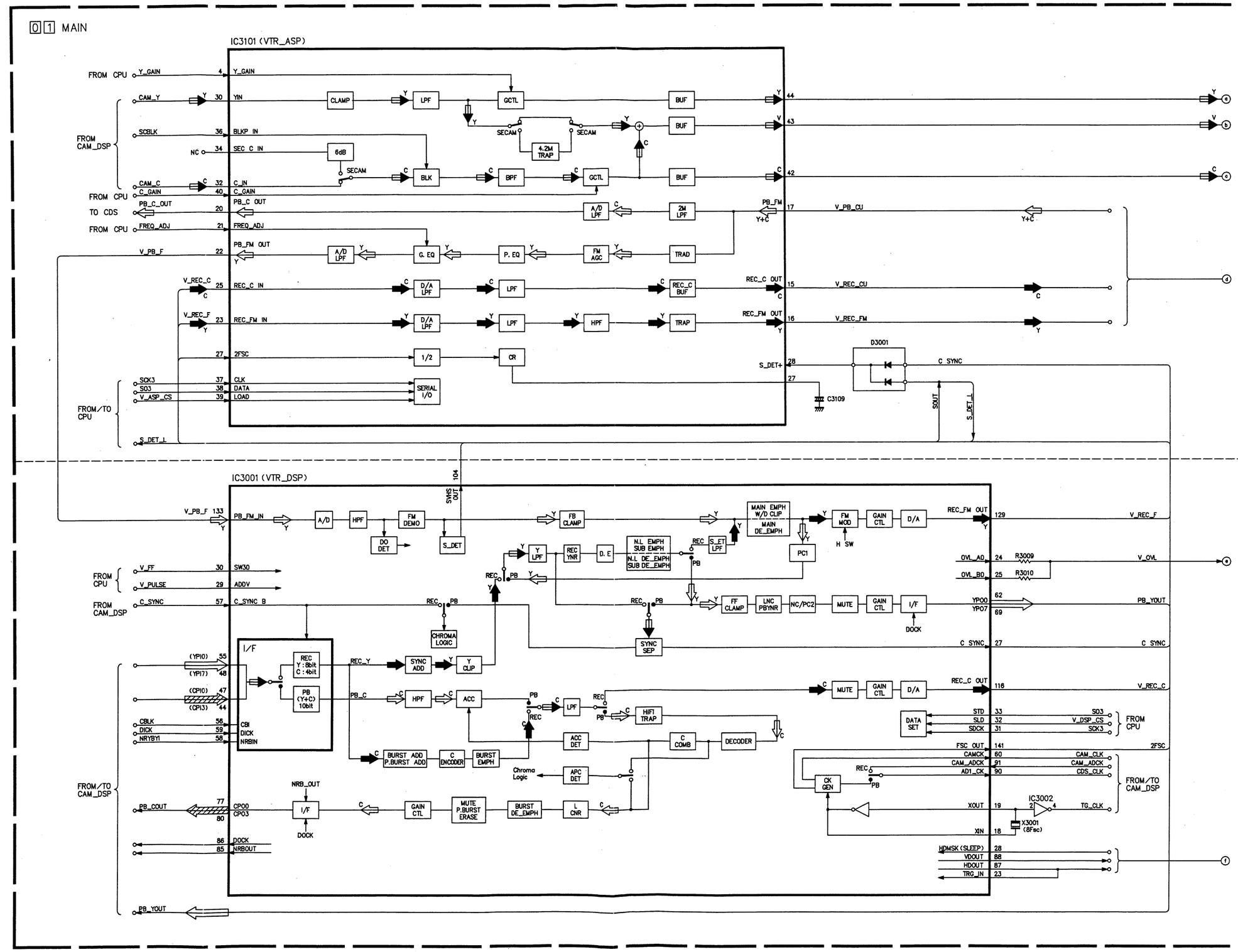
OSD I/F

BLK1 204 BLK_1 → 11 BLK1
BLK2 205 BLK_2 → 13 BLK2
VBLK 206 VBLK → 15 VBLK
VB 203 VB → 18 VB
VG 202 VG → 17 VG
VR 199 VR → 16 VR
VC1 197 VC_1 → 12 VC1
VC2 198 VC_2 → 14 VC2
CLKOSD 196 CLKOSD → 8 OSCIN

PCL 4 DSP_RST ← FROM CPU
DATA 3 OSD_DATA
CS 2 OSD_CS
CLK 1 OSD_CLK

I J K L 4-45 4-46 M N O P

4.20 Y/C BLOCK DIAGRAM



(VTR_ASP)

(PRE/REC)

(VTR_DSP)

CN25 JIG CONN.
3 V_OUT_J

(JACK)

J504
A/V OUT

J505
S OUT

Q3103,Q3104 75Ω DRIVER
V_OUT
R3114

Q3105,Q3106 75Ω DRIVER
SY_OUT

Q3101,Q3102 75Ω DRIVER
SC_OUT

Y+C
C
Y

IC3501

NC 48
AGC
AGC DET
EP/SP AMP
SW
CH1/3 PB AMP
CH2/4 PB AMP
CT SW3 21
CT SW1 28
CT SW4 33
CT SW2 40
Q3501 CH3_S 23
CH3_F 11
Q3501 CH1_S 26
CH1_F 9
Q3502 CH4_S 35
CH4_F 7
Q3502 CH2_S 38
CH2_F 5
CH3 CURRENT AMP 20
CH1 CURRENT AMP 29
CH4 CURRENT AMP 32
CH2 CURRENT AMP 41
R/T VIDEO HEAD
CN5
CH3 CH1 CH4 CH2

Y
V_REC_FM 9
Y+C
V_PB_CU 5
C
V_REC_CU 8
Y/C MIX
7
C3504
6
V/A AMP
V_OVL 12 HEAD SW
FROM CPU
V_REC_I 4 REC/PB
SP_L 19 SP/EP
V_REC_MUT 11 MUTE

V_OVL

HDMASK R3032 V_PLULSE FROM CPU

IC3004

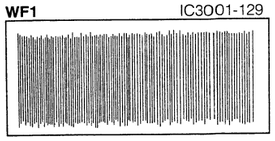
REG_3.2V 4 S (PR)
VDOUT 3 C1 (CLK) Q 5 (NOT USED)
Q3005
2 1D (D)
HDOUT 1 R (CLR) Q 6 NC
TBC_VD
REG_3.2V 10 S (PR)
11 C2 (CLK) Q 9 V_FF_O TO CAM_DSP
V_FF 12 2D (2D)
13 R (CLR) Q 8 NC
FROM/TO IC3001
FROM CPU

I J K L 4-49 4-50 M N O P

4.21 WAVEFORMS

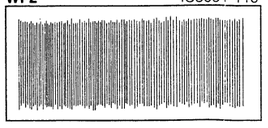
– VTR DSP –

WF1 IC3001-129



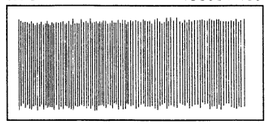
REC 0.76 Vp-p
20mV/10µse/DIV

WF2 IC3001-116



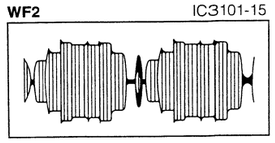
REC 0.46 Vp-p
10mV/10msec/DIV

WF3 IC3001-133



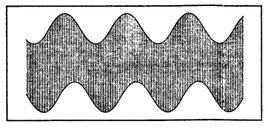
PB 0.9 Vp-p
50mV/10µsec/DIV

WF2 IC3101-15



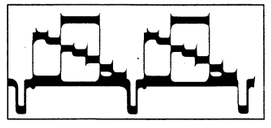
REC 0.2 Vp-p
10mV/10µsec/DIV

WF3 IC3101-17



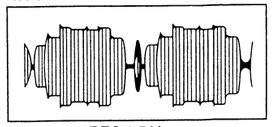
PB 0.4 Vp-p
10mV/10µsec/DIV

WF4 IC3101-30



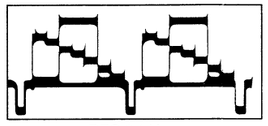
REC 0.8 Vp-p
20mV/10µsec/DIV

WF6 IC3101-42



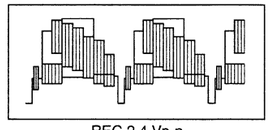
REC 1.5 Vp-p
PB 1.6 Vp-p
20mV/20µsec/DIV

WF7 IC3101-44



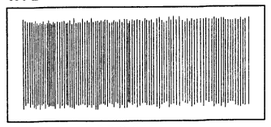
REC 2.1 Vp-p
PB 2.3 Vp-p
50mV/20µsec/DIV

WF8 IC3101-43



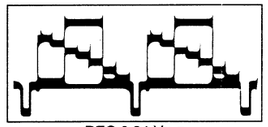
REC 2.4 Vp-p
PB 2.2 Vp-p
50mV/20µsec/DIV

WF2 IC5201-27



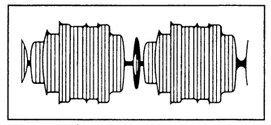
PB 0.6 Vp-p
50mV/0.5mV/DIV

WF3 IC4001-162



REC 0.84 Vp-p
20mV/10µsec/DIV

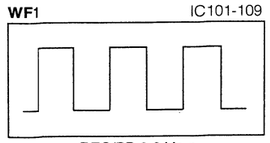
WF4 IC4001-166



REC 0.53 Vp-p
10mV/10µsec/DIV

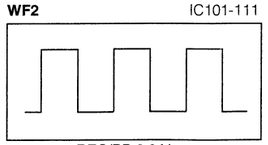
– CPU –

WF1 IC101-109



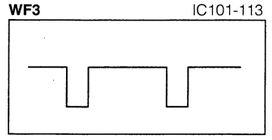
REC/PB 3.2 Vp-p
0.1V/0.5msec/DIV

WF2 IC101-111



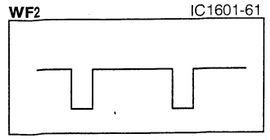
REC/PB 3.2 Vp-p
0.1V/0.1msec/DIV

WF3 IC101-113



REC/PB 3.2 Vp-p
0.1V/5msec/DIV

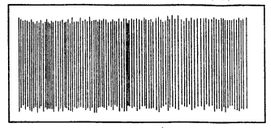
WF2 IC1601-61



REC/PB 3.2 Vp-p
0.1V/5msec/DIV

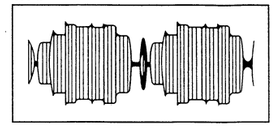
– VTR ASP –

WF1 IC3101-16



REC 0.3 Vp-p
10mV/10µsec/DIV

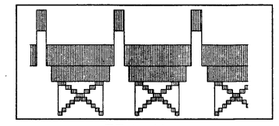
WF5 IC3101-32



REC 0.52 Vp-p
10mV/10µsec/DIV

– CAMERA DSP –

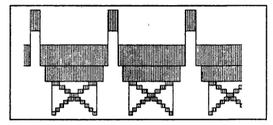
WF1 IC5201-26



EE 1.5 Vp-p
20mV/20µsec/DIV

– CCD –

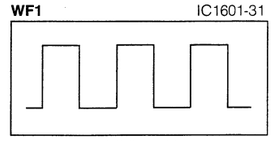
WF1 Q5301-B



EE 1.5 Vp-p
20mV/20µsec/DIV

– MECHA MDA–

WF1 IC1601-31



REC/PB 3.2 Vp-p
0.1V/0.1msec/DIV

4.22 VOLTAGE CHARTS

<CPU>

MODE PIN NO.	REC	PLAY
IC101		
1	3.2	3.2
2	3.2	3.2
3	3.2	3.2
4	3.2	3.2
5	0	0
6	0	0
7	3.2	3.2
8	3.2	3.2
9	0.9	0.7
10	0	0
11	3.1	3.1
12	1.4	1.4
13	3.2	3.2
14	0	0
15	0	0
16	1.6	0
17	0	0
18	3.2	3.2
19	3.2	0
20	0	0
21	3.2	0
22	0	0
23	0	0
24	2.5	2.5
25	2.9	2.9
26	1.6	1.6
27	3.2	3.2
28	0	0
29	1.6	1.6
30	0	0
31	2.3	2.3
32	3.2	3.2
33	3.2	3.2
34	3.2	3.2
35	3.2	3.2
36	0	0
37	0	0
38	0	0
39	3.2	3.2
40	0	0
41	0	0
42	3.2	3.2
43	0	0
44	3.1	3.2
45	0	0
46	2.7	2.7
47	2.6	2.6
48	2.6	2.6
49	2.7	0
50	3	2.7
51	0	2.6
52	2.9	2.7
53	–	2.8
54	–	–
55	0	0
56	0	0
57	1.7	1.7
58	1.5	1.5
59	1.6	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	3.2	3.2
67	3.2	3.2
68	0	0
69	3.2	3.2
70	1.6	1.6
71	1.3	–
72	0	0
73	1.6	1.6
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	3.2	3.2
82	0	0
83	1.9	0
84	0	3.2
85	3.2	0
86	3.2	0
87	3.2	0
88	0	0
89	0	0
90	3.2	3.2
91	3.2	0
92	3	3.2
93	3	3
94	3.2	3.2
95	0	0
96	0	0
97	0	0
98	3.2	3.2
99	3.2	3.2
100	0	0.6
101	3	2.6
102	3.2	3.2
103	1.6	1
104	2.6	2.6
105	0	0
106	0	0
107	3.2	3.1
108	3.1	3.1
109	1.5	1.6
110	0	0
111	1.4	1.5
112	1.9	1.9
113	2.8	2.9
114	0	0
115	0	0
116	3.2	3.2
117	2.3	2.7
118	3.2	3.2
119	3.2	3.2
120	2.1	2.1
121	2.9	2.9
122	0	0
123	0	0
124	0	0
125	1.6	0.5
126	3.1	3.2
127	0	0
128	3.2	3.2
129	1.9	1
130	1.6	1.6
131	2.6	3
132	3.1	3.1
133	3.2	3.2
134	0	0
135	3.2	3.2
136	3.2	3.2
137	0	0
138	0	0
139	0	0
140	3.2	3.2
141	3.2	3.2
142	3.2	3.2
143	0	0
144	0	0
145	0.8	0.7
146	0.8	0.7
147	0.7	0.6
148	0.8	0.6
149	0.7	0.7
150	0.6	0.6
151	0.6	0.6
152	0.6	0.5
153	3.2	3.2
154	0	0
155	0.7	0.9
156	0.7	0.9
157	0.6	0.7
158	0.7	0.7
159	0.7	0.5
160	1.1	0.4
161	1.1	0.5
162	1	0.4
163	3.2	3.2
164	3.2	3.2
165	3.2	3.2
166	3.2	0
167	0	0
168	0	0
169	0	0
170	3.1	3.1
171	0	3.2
172	0	3.2
173	0	0
174	0	3.1
175	0	3.2
176	0	3.2
IC102		
1	3.3	3.3
2	0	0
3	6.8	6.8
IC104		
1	3.2	3.2
2	0	0
3	0.7	3.2
4	0	0
5	0.5	0
6	3.2	0
7	0.5	3.2
8	3.2	3.2
IC105		
1	0	0
2	2.1	2.1
3	2	2
4	1.1	1.1
5	3.2	1.4
6	3.2	1.4
7	3	3
8	3.2	3.2
9	3.2	3.2
10	0	0
11	2.3	1.9
12	0	0
13	3.1	3.1
14	0.9	0.8
15	2.1	2.1
16	0	0
IC106		
1	0	0
2	0	0
3	3.2	3.2
4	3.2	3.2
IC107		
1	0	0
2	3.2	3.2
3	0	3.2
4	0	0
5	0	0
6	0.8	0.5
7	1.1	0.6
8	3.1	3.1
IC1801		
1	3	3
2	0	0
3	4.8	4.8
Q101		
E	6.8	6.8
C	6.8	6.8
B	6	6
Q102		
E	0	0
C	0	0
B	3.2	3.2
Q103		
E	0	0
C	0	4.8
B	0.6	0
Q104		
E	0	0
C	4.6	4.6
B	0	0
Q105		
E	4.8	4.8
C	-7.5	-5.5
B	4.8	4.8
Q106		
E	0	0
C	0	0
B	3	3.2
Q107		
E	4.8	4.8
C	4.8	4.8
B	0	0
Q110		
E	0	0
C	0	0
B	3.2	3.2

<CTL AMP>

MODE PIN NO.	REC	PLAY
IC1201		
1	1.8	1.8
2	3.2	0
3	1.9	0
4	0	0
5	0.6	1.7
6	0.4	1.7
7	0.5	0
8	1.7	1.2
9	1.7	1.7
10	2	1.1
11	0	0
12	0	0.9
13	0.8	0.8
14	3.2	3.2

<MECHA MDA>

MODE PIN NO.	REC	PLAY
IC1601		
1	0	0
2	1.4	1.4
3	1.4	1.5
4	0	0
5	1.5	1.5
6	0	0
7	0	0
8	0	0
9	0.8	2
10	0	0
11	0	0
12	0.5	2
13	0	0
14	6.7	6.7
15	0	0
16	2.4	0.8
17	0	0
18	0.9	0.8
19	0	0
20	0	0.8
21	0	1.2
22	0	1.1
23	2	3.2
24	6.7	6.8
25	2.4	2.4
26	2.4	2.4
27	2.4	2.4
28	2.4	2.4
29	2.4	2.4
30	2.4	2.4
31	1.6	1.6
32	2.4	2.4
33	2.4	2.4
34	2.4	2.4
35	4.8	4.8
36	3.2	3.2
37	1.1	1.1
38	0.6	0.6
39	0.6	0.6
40	1.2	1.2
41	1.7	1.7
42	4.8	4.8
43	4.8	4.8
44	0	0
45	0	0
46	0	0
47	3.1	3.1
48	0	0
49	0.8	0.7
50	2	2
51	0	0
52	1.5	1.5
53	1.3	1.3
54	4.6	4.8
55	0.6	0.6
56	0.6	0.6
57	0	1
58	0	0.6
59	0	0
60	1.7	1.7
61	2.9	2.9
62	1.9	2
63	2.5	2.5
64	2.3	2.5
65	2.5	2.5
66	2.4	2.5
67	1.6	1.6
68	1.9	1.9
69	0	0
70	1.5	1.5
71	1.5	1.5
72	1.5	1.5
73	1.5	1.5
74	1.5	1.5
75	0.4	0.4
76	3.9	3.9
77	6.8	6.8
78	3.9	4
79	0	0
80	0	0

<VTR DSP>

MODE PIN NO.	REC	PLAY
IC3001		
1	3.2	3.2
2	3.2	3.2
3	0	0
4	1.9	1.8
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	3.2	3.2
14	1.9	1.8
15	0	0
16	0	0
17	3.2	3.2
18	1.5	1.5
19	1.5	1.4
20	0	0
21	0	0
22	0	0
23	2.9	3
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	1.6	1.6
31	3.1	3.1
32	3.2	3.2
33	0.6	0.7
34	3.2	3.2
35	3.2	3.2
36	3.2	3.2
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	1.5	0
45	0.8	0
46	0.9	1.6
47	0.9	1.5
48	0.8	1.5
49	0.7	1.5
50	0.8	1.5
51	0.6	1.5
52	1.2	1.6
53	1.5	1.6
54	1.8	1.5
55	1.2	1.5
56	2.4	2.4
57	2.9	2.9
58	1.5	1.5
59	1.6	1.6
60	1.3	1.3
61	3.2	1.5
62	1.1	1.6
63	1.3	1.1
64	1.1	2.6
65	1	0.6
66	0.1	0.6
67	0.7	2.1
68	2	1.2
69	1.2	1.8
70	1.9	0
71	1.9	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	1	1.7
78	0.9	1.6

MODE PIN NO.	REC	PLAY
79	1	1.5
80	1.6	1.5
81	0	0
82	0	0
83	0	0
84	0	0
85	1.5	1.6
86	1.4	1.4
87	2.9	2.9
88	3.2	3.2
89	0	0
90	1.6	1.5
91	1.6	1.6
92	1.3	1.3
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
99	0	0
100	0	0
101	0	0
102	0	0
103	0	0
104	0	3.2
105	3.2	3.2
106	0	0
107	0	0
108	0	0
109	3.2	3.2
110	3.2	3.2
111	0	0
112	1.9	1.8
113	1.9	1.8
114	0	0
115	3.2	0
116	0	0
117	0.8	0
118	1.2	1.3
119	2	1.9
120	0	0
121	0	0
122	0.8	0
123	3.2	3.2
124	0	0
125	0	0
126	1	0
127	1.8	3.2
128	1.8	1.8
129	0	0
130	3.2	1
131	0	0
132	3.2	3.2
133	1.5	1.5
134	1.5	1.5
135	2.2	2.2
136	3.2	3.2
137	0.8	0.8
138	3.2	3.2
139	0	0
140	0	0
141	1.5	1.5
142	3.2	3.2
143	3.2	3.2
144	3.2	3.2
IC3002		
1	0	0
2	1.5	1.5
3	0	0
4	1.7	1.7
5	3.2	3.2
IC3004		
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–

MODE PIN NO.	REC	PLAY
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
Q3002		
1	0.8	0.5
2	1.4	1.4
3	3.2	3.2
4	2.2	2.2
5	2.9	2.9
6	3.2	3.2
Q3003		
E	2	2
C	1.9	1.9
B	1.3	1.3
Q3004		
E	0	0
C	0.4	0.4
B	1.3	1.3
Q3005		
E	–	–
C	–	–
B	–	–

<PRE/REC>

MODE PIN NO.	REC	PLAY
IC3501		
1	1.2	0
2	0.5	0
3	2.4	2.4
4	0	3.2
5	4.4	2.6
6	1.5	0
7	1.7	2.4
8	2.3	2.3
9	2.3	2.3
10	3.1	3.1
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	3	1.8
17	3	2.9
18	0	0
19	0	0
20	4	0
21	3.3	0.6
22	4	0
23	0	0.6
24	0	0
25	0	0
26	0	0.6
27	4	0
28	3.8	0.6
29	4	0
30	4.7	0
31	4.7	0
32	4	0
33	–	0.6
34	4	0
35	0	0.6
36	0	0
37	0	0.7
38	0	0.6
39	4	0
40	–	0.5
41	4	0
42	3	-0.7
43	0	0
44	4.8	4.8
45	0	0

MODE PIN NO.	REC	PLAY
46	2.3	0
47	3.8	2.6
48	4.2	2.4
IC3901		
1	2	0
2	2	0
3	0	0
4	0	0
5	4	0
6	2	0
7	2	0
8	4	0
Q3501		
1	4	0
2	4	0.5
3	4	0
4	4	0
5	–	0.5
6	4	0
Q3502		
1	4	0
2	-0.6	
3	4	0
4	0	0
5	-0.6	
6	4	0
Q3506		
E	0	0
C	0	0
B	0	3.2
Q3901		
E	4.8	4.8
C	4.7	-3.1
B	0	4.8
Q3902		
E	0	0
C	4.8	4.8
B	3.2	0
Q3903		
E	1.6	0
C	4.7	-3.1
B	4.7	3.1
Q3904		
E	0	0
C	2	0
B	0	3.1

<VTR ASP>

MODE PIN NO.	REC	PLAY
IC2001		
1	1.5	3.2
2	1.5	0
3	1.5	0
4	1.4	3.2
5	1.5	3.2
6	1.5	0
7	0	0
8	1.5	0
9	1.5	3.2
10	1.5	0
11	1.4	1.3
12	0	0
13	1.4	1.3
14	3	3.2
IC3101		
1	3.1	1.4
2	2.4	2.4
3	2.4	2.4
4	2.4	2.5
5	0	0.4
6	0	0
7	2.2	2.4
8	0	0
9	2.4	2.4
10	2.7	2.5
11	2.8	2.5
12	0	2.5
13	4.8	4
14	0	0
15	2.9	1.4
16	2.3	1.5
17	2.2	2.1
18	0	2.1
19	4.8	4.8
20	0.9	2.2
21	0	2.3
22	2.9	2.3
23	2.9	2.2
24	0	0
25	2.8	0.5
26	2.9	2.8
27	2.8	0.6
28	0	2.6
29	2.5	2.5
30	1.9	2
31	0	0
32	2.8	2.8
33	0	0.7
34	2.9	2.9
35	0	0.6
36	3.2	3.2
37	3.1	3.1
38	0.9	0.7
39	3.2	3.2
40	1.1	1.1
41	2	2
42	2.1	2.1
43	2.5	2.5
44	2.5	2.5
45	0	2.4
46	4.8	4.8
47	2.5	2.5
48	2.4	2.4
Q2001		
E	3	3.2
C	1.4	3.2
B	3.2	0.9
Q2006		
E	0	0
C	0	0
B	0	0
Q2007		
1	-10.4	0
2	-16.8	0.7
3	0	0
4	-10.7	0
5	-16.7	0.7
6	0	0

<CAMERA DSP>

MODE PIN NO.	REC	PLAY
Q2008		
1	3	1.8
2	3.2	1.2
3	3.2	1.2
4	3	1.8
5	3.2	1.2
6	-16.8	0.8
Q2071		
E	11.6	11.6
C	12.2	12.3
B	12.1	12.1
Q2072		
1	4.2	4.2
2	4.7	4.8
3	11.6	11.7
4	10.4	10.4
5	11	11
6	11	11
Q3101		
1	1.5	1.5
2	2.1	2.1
3	4.8	4.8
4	2.1	2.1
5	2.8	2.8
6	4.8	4.8
Q3102		
1	2.8	2.8
2	2.1	2.1
3	0	0
4	2.1	2.1
5	1.5	1.5
6	0	0
Q3103		
1	1.9	2
2	2.5	2.6
3	4.8	4.8
4	2.5	2.6
5	3.1	3.2
6	4.8	4.8
Q3104		
1	3.1	3.2
2	2.5	2.6
3	0	0
4	2.5	2.6
5	1.8	1.9
6	0	0
Q3105		
1	1.8	1.9
2	2.4	2.6
3	4.8	4.8
4	2.5	2.5
5	3.1	3.2
6	4.8	4.8
Q3106		
1	3.1	3.2
2	2.5	2.5
3	0	0
4	2.5	2.5
5	1.9	1.9
6	0	0
Q3113		
E	0	0
C	6.6	–
B	0	0

MODE PIN NO.	REC	PLAY
IC4001		
1	3.2	3.2
2	0	0
3	0	0
4	0	0
5	3.2	3.2
6	3.1	3.2
7	0.6	3.2
8	0.6	3.2
9	0.7	0.8
10	3.2	3.2
11	0.6	0.8
12	0.4	1.2
13	0.4	1.2
14	0.4	1.5
15	0	0
16	0.4	1.4
17	0.6	1.6
18	0.7	1.5
19	1.8	1.8
20	0.6	0.5
21	0.6	1.6
22	0	1.5
23	0.4	1.5
24	0	1.8
25	0	1.5
26	0	0
27	1.8	1.8
28	0	0
29	0	0
30	1.6	1.8
31	2.6	2.6
32	1.6	1.6
33	0.7	0.8
34	1.8	1.8
35	1.2	1.2
36	0	0
37	3.1	3.2
38	0	0
39	0	0
40	1.6	1.6
41	1.2	1.7
42	1.2	1.6
43	3.2	3.2
44	1.2	1.6
45	1.1	1.5
46	1.3	1.5
47	0.7	1.3
48	0.6	1.5
49	0.6	1.2
50	0	0
51	1.1	1.5
52	0.8	1.3
53	1	1.5
54	1.5	1.5
55	1.5	1.5
56	1.6	1.6
57	0	0
58	0	0
59	3.2	3.2
60	0	0
61	3.2	3.2
62	1.5	0
63	0.9	0
64	0.8	1.8
65	0.9	1.8
66	0.6	1.7
67	0.7	1.7
68	0.8	1.7
69	0.5	1.7
70	1.3	1.7
71	1.7	1.7
72	0	0
73	1.8	1.7
74	1.8	1.7
75	1.1	1.7
76	1.5	1.5
77	1.6	1.6
78	2.9	2.9

MODE PIN NO.	REC	PLAY
79	1.8	1.8
80	2.4	2.4
81	1.1	1.7
82	1.4	1.7
83	1.7	1.8
84	0.8	1.8
85	0	0
86	1.8	1.8
87	0.5	2.2
88	0.6	2.2
89	2.1	2.2
90	1.2	1.5
91	0.8	1.6
92	0.7	1.5
93	0.8	1.6
94	1.5	1.5
95	1.5	1.6
96	0	0
97	3.2	3.2
98	1.5	1.5
99	3.2	3.2
100	3.2	3.2
101	3.2	3.2
102	0	0
103	3.2	3.2
104	3.2	3.2
105	3.2	3.2
106	3.2	3.2
107	0	0
108	3.2	3.2
109	3.2	0
110	3.2	3.2
111	3.2	3.1
112	1.3	3.1
113	1.2	3.1
114	0	1.9
115	1	2
116	1	3.2
117	0.7	2
118	0.7	0.6
119	0	2
120	0.7	2
121	0.8	0
122	1.3	2
123	1.8	1.5
124	0.8	1.5
125	0.9	1.8
126	1.6	1.5
127	1.5	1.5
128	0	1.5
129	0	0
130	0	0
131	1.8	1.8
132	0	0
133	3.1	0
134	2.7	2.7
135	2.7	2.7
136	0	0
137	0	0
138	1.8	1.8
139	0	0
140	0	0
141	0.5	0
142	0	0
143	0.5	0
144	0.8	1.7
145	2.5	1.6
146	0.8	0
147	3.2	3.2
148	0.8	1.6
149	0.9	1.7
150	1.3	1.6
151	1.2	1.6
152	1.5	1.6
153	1.4	0
154	0	0
155	2.9	0
156	3.1	0
157	0	0

MODE PIN NO.	REC	PLAY
158	3.2	3.2
159	2.5	2.5
160	1.1	1.1
161	1.1	1.1
162	0.4	0.5
163	0	0
164	1.1	1.1
165	1.1	1.1
166	0.4	0.4
167	0.5	0.4
168	0	0
169	2.5	2.5
170	0	0
171	0	0
172	1.2	1.1
173	1.1	1.1
174	0	0
175	0.5	0.4
176	0.4	0.4
177	2.5	2.5
178	1.2	0
179	1.1	1.1
180	1.2	1.2
181	0	0
182	2.5	0
183	1.8	1.8
184	3.2	0
185	3.2	3.2
186	0	0
187	0	0
188	3.2	3.2
189	0	0
190	1.8	1.8
191	3.2	0
192	3.2	3.2
193	1.5	0.7
194	3.1	3.1
195	3	3
196	1.5	1.5
197	0	0
198	0	0
199	0	0
200	0	0
201	3.2	3.2
202	0	0
203	0	0
204	0	0
205	0	0
206	0	0
207	0	0
208	0	0
IC4003		
1	2.9	2.9
2	2.3	2.3
3	2.5	2.6
4	3.2	3.2
5	3.2	0
6	0	0
7	0	0
8	0.8	1.5
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	3.1	3.1
20	2.9	2.9
IC4004		
1	3.2	3.2
2	0	0
3	1.3	1.3
4	2.5	2.5
5	3.2	3.2

MODE PIN NO.	REC	PLAY
IC4005		
1	0.8	0
2	0	0
3	1.3	1.3
4	0.7	2.9
5	3.2	3.2
IC5201		
1	0	0
2	1.2	1.7
3	1.3	1.7
4	0.8	1.7
5	0.7	1.7
6	0.7	1.7
7	2.3	1.7
8	0.6	1.7
9	0.7	1.7
10	0.7	1.6
11	0	1.8
12	0	0
13	0	0
14	0	0
15	3.2	3.2
16	1.6	1.5
17	3	0
18	2.8	0
19	2.7	0
20	2.6	0
21	0	0
22	0	0
23	3.2	3.2
24	0	0
25	0	0.6
26	2	0.4
27	1.5	1.6
28	2	0
29	2	0
30	0	0
31	3.1	0.5
32	2	2.1
33	1	1
34	1.5	1.5
35	1.2	1.2
36	0	0.6
37	0	0
38	3.2	3.1
39	0	0.5
40	0	0
41	3.2	3.2
42	0	0
43	3.2	3.2
44	3.1	3.1
45	0.6	0.8
46	3.2	3.2
47	0	0
48	0	0
IC5202		
1	3.2	3.2
2	3.2	3.2
3	1.5	1.6
4	3.1	0
5	3.1	0
6	2.6	0
7	0	0
8	1.7	1.7
9	3.2	3.2
10	1.7	1.6
11	1.6	1.5
12	1.6	1.6
13	3.2	3.2
14	0	0
15	2.8	0
16	2.7	0
17	2.8	0
18	0.4	0
19	3.2	3.2
20	0	3.2
21	1.7	0
22	1.5	0
23	0	0

MODE PIN NO.	REC	PLAY
24	0	0
25	0	2.2
26	0	1.4
27	0	0
28	0	0
29	-7.6	0
30	0	15.1
31	15.1	15.1
32	-7.6	15.1
33	-8.1	-8.2
34	-8.1	-8.2
35	0	0
36	0	1.5
37	0	0.5
38	0	0.5
39	3.1	3.1
40	0.9	0.7
41	0	0
42	0	3.2
43	0	0
44	3.2	3.2
45	0	0
46	3.2	0
47	2.9	0
48	3.1	0
Q4001		
1	0	0
2	0.4	0.5
3	1	1
4	0	0
5	0.4	0.4
6	1	1.1
Q4002		
1	0	0
2	0	0
3	0.8	0.8
4	0	0
5	0	0
6	0.8	0.8
Q4004		
E	1.1	1.2
C	0	0
B	0.5	0.6

<IRIS & AF/ZOOM>

MODE PIN NO.	REC	PLAY
IC4201		
1	1.5	0
2	1.6	0
3	1.5	1.5
4	0	0
5	1.9	1.9
6	1.9	1.9
7	1.9	1.9
8	4.8	4.8
IC4202		
1	0	0
2	0	3.2
3	1.6	0
4	4.8	4.8
5	1.9	1.6
6	1.9	2
7	1.6	3.5
8	2.5	0
9	1.9	1.9
10	2.5	0
11	0	0
12	0	0
13	0	0
14	0.9	1.6
IC4251		
1	2	2
2	2	2
3	2	2
4	0	0
5	2	2
6	2	2
7	1.7	1.7
8	4.8	4.8
IC4501		
1	0	0
2	0.8	0.8
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	3.2	3.2
9	4.8	4.8
10	1.7	2.2
11	0	0
12	1.6	2.2
13	4.8	4.8
14	1.3	0.8
15	0	0
16	2.2	3.6
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	4.8	4.8
24	1.6	2.3
25	0	0
26	1.6	2.3
27	4.8	4.8
28	1.6	2.3
29	0	0
30	1.5	2.3
31	0	0
32	0	0
33	0	0
34	0	0.7
35	3.1	3.2
36	1.6	1.6
37	1.5	1.5
38	3.2	3.2
Q4201		
E	0	0
C	1.4	0
B	1	1

MODE PIN NO.	REC	PLAY
Q4251		
E	0	0
C	4.8	4.8
B	–	–
Q4501		
E	0	0
C	4.8	1.1
B	0	0

<REG>

MODE PIN NO.	REC	PLAY
IC6001		
1	2	2.2
2	1.2	1.2
3	2.2	2.2
4	0	0
5	6.7	6.8
6	1	1
7	2.5	1.2
8	2.2	2.2
9	0	0
10	0	0
11	1	1
12	1	1
13	1	1
14	0.7	0.7
15	0	0
16	0	0
17	0.7	0.7
18	1	1
19	1.1	1
20	1	1
21	1	0.9
22	0.9	1
23	1	1
24	1	1
25	1	0.9
26	0.9	0.9
27	0	0
28	0.9	1
29	0	0
30	2.4	2.4
31	0.7	0.8
32	0.7	0.7
33	6.7	6.7
34	6.8	6.8
35	3.2	3.2
36	3.2	3.2
37	0	0
38	2.7	2.7
39	3.4	3.5
40	3	3
41	0	0
42	1.8	1.8
43	1.3	1.4
44	4.6	4.6
45	4.6	4.6
46	2.8	2.8
47	0	0
48	2.2	2.2
Q6111		
G	3.4	3.5
D	3.2	3.2
S	6.8	6.8
Q6121		
G	1.8	1.8
D	4.9	4.9
S	6.8	6.8
Q6123		
E	4.7	4.8
C	4.7	4.7
B	4.1	4.1
Q6124		
E	0	0
C	0	0
B	0.7	0.7

MODE PIN NO.	REC	PLAY
Q6131		
G	2.8	2.8
D	3.9	3.9
S	6.8	6.8
Q6141		
G	4.6	4.7
D	2	2
S	6.7	6.8
Q6151		
G	4.6	4.6
D	2	2
S	6.7	6.7
Q6161		
G	2.8	2.8
G	0	0
S	0	0
Q6162		
1	4.3	4.3
2	5	5.2
3	15.2	15.2
4	4.3	4.3
5	4.8	4.8
6	15.8	15.8
Q6163		
E	15.8	18.5
C	12.2	12.3
B	15.2	15.2
Q6164		
E	15.1	15.1
C	15.8	15.8
B	15.8	15.8
Q6165		
1	-7.5	-7.6
2	-8.1	-8.2
3	-14	-16.1
4	-7.6	-7.6
5	-8	-8.1
6	-16	-16.1
Q6166		
E	-14.6	-16.1
C	8.1	8.2
B	-14	-16
Q6201		
E	6.8	6.8
C	0	0
B	6.7	6.8
Q6202		
E	1.6	0.4
C	6.8	6.8
B	0	0
Q6203		
E	0	0
C	6.8	6.8
B	0	0

<VF/MTIF>

MODE PIN NO.	REC	PLAY
IC7802		
1	0.4	0.4
2	0.4	0.4
3	0	0
4	0.5	0.5
5	4.7	4.7

<CCD>

MODE PIN NO.	EE
IC5301	
1	-7.6
2	-7.6
3	0
4	0
5	0
6	9.5
7	14.9
8	0
9	0
10	10.3
11	-8.1
12	9.8
13	1.7
14	1.6
Q5301	
E	8.8
C	15
B	9.5

<VF>

MODE PIN NO.	EE
IC7400	
1	0
2	2.5
3	1.7
4	0.4
5	0.4
6	0
7	0
8	1.2
9	0
10	0
11	0
12	0
13	3
14	2.6
15	3.1
16	2.1
17	0.7
18	0
19	3.2
20	3.2
21	1.5
22	1.6
23	0
24	1.8
25	3.1
26	0
27	0
28	0
29	0
30	6.1
31	1.9
32	6
33	1.9
34	5.9
35	1.9
36	0
37	12.1
38	2.5
39	0
40	0
41	12.1
42	5.7
43	0
44	1.6
45	0
46	3.2
47	0
48	0
49	1.4
50	3.1
51	1.4
52	1.4
53	0
54	0
55	3.1
56	0
57	0
58	0
59	0
60	0
61	1.6
62	1.6
63	3.1
64	0
65	3.2
66	0
67	3.1
68	1.6
69	1.4
70	2
71	2
72	2
Q7402	
E	1.5
C	3.2
B	2.2

<BL>

MODE PIN NO.	EE
Q7301	
G	0.5
D	4.6
S	0

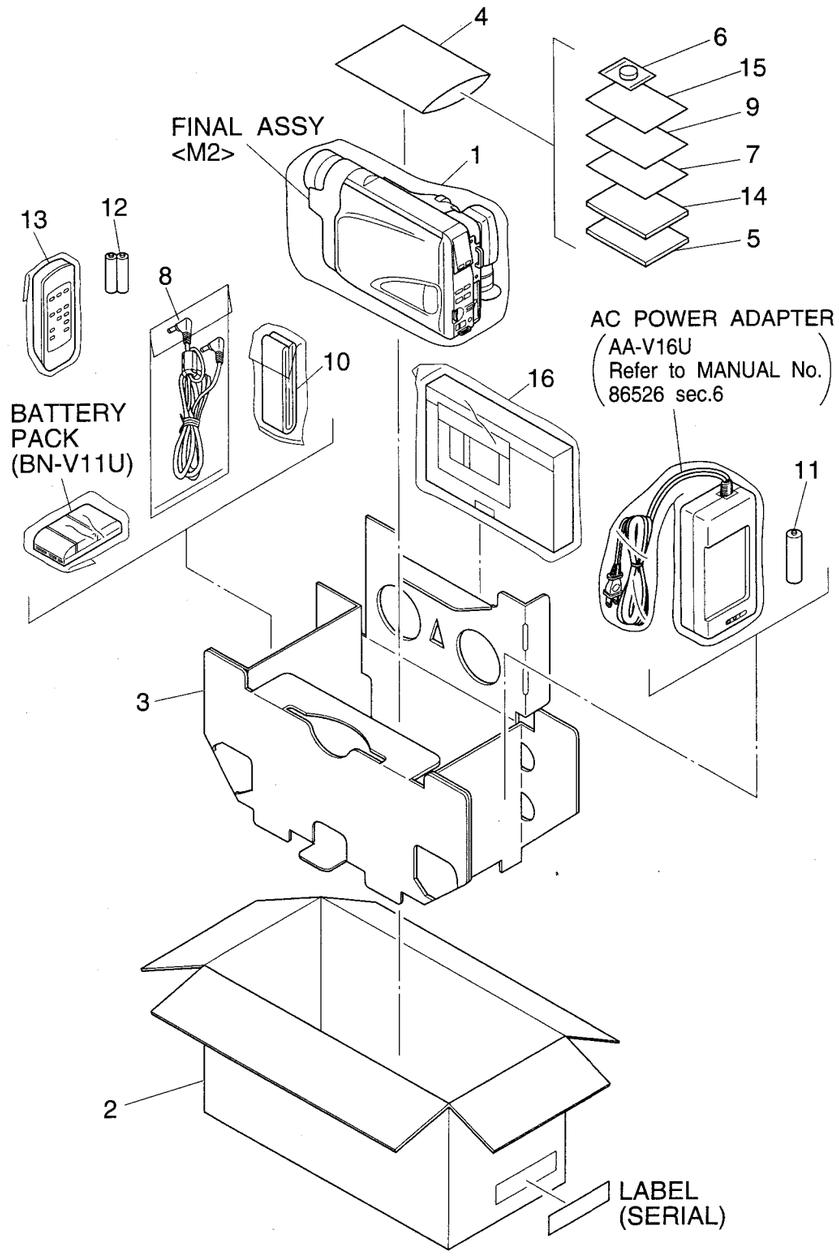
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

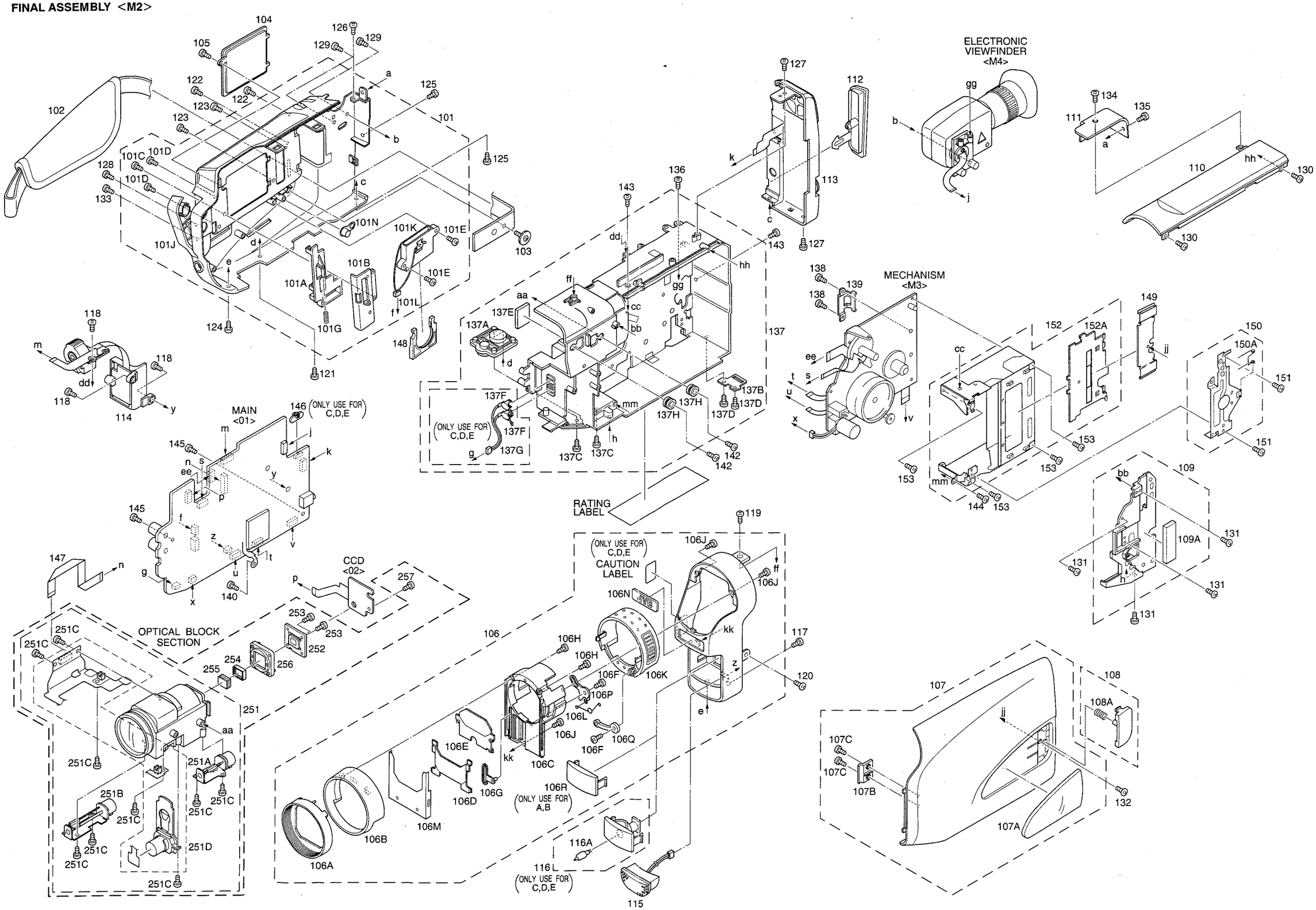
PACKING ASSEMBLY <M1>

	1	LY30023-002A	POLY BAG
	2	LY31561-004A	PACKING CASE,E
		LY31561-011A	PACKING CASE,A
		LY31561-012A	PACKING CASE,B
		LY31561-013A	PACKING CASE,C
		LY31561-014A	PACKING CASE,D
	3	LY31562-001A	CUSHION
	4	QPA02003006	POLY BAG
⚠	5	LYT0464-001A	IB(EN),E
⚠		LYT0465-001A	IB(EN),C,D
⚠		LYT0480-001A	IB(EN),A,B
⚠	6	PECA0903	LI BATTERY
	7	BT-51020-2	REGIST.CARD,A,C,E
	8	QAM0170-001	DC CABLE
	9	BT-20071B	SER.NET CARD,B,D
	10	LY20186-001A	SHOULDER STRAP
	11	–	BATTERY,CASS.ADAPTER,R6(AA)
	12	–	BATTERY,RCU,R03(AAA)X2,E
	13	LY42129-001A	REMOTE CONTROLLER,E
⚠	14	LYT0490-001A	IB(FR),B,D
	15	BT-52004-1	WARRANTY CARD,B,D
	16	YQ31963A-3	CASS.ADAPTER ASSY
		or YQ31963B-3	CASS.ADAPTER ASSY

• INSTRUCTIONS
EN ..... ENGLISH
FR ..... FRENCH

MODEL	MARK
GR-SX850U	A
GR-SX850UC	B
GR-SX851U	C
GR-SX851UC	D
GR-SX950U	E

5.2 FINAL ASSEMBLY <M2>



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

FINAL ASSEMBLY <M2>

	⚠	101	LY10122-030A	LOWER CASE ASSY,C,D,E
	⚠		LY10122-035A	LOWER CASE ASSY,A,B
		101A	LY30885-001C	KNOB(B.RELEASE)
		101B	LY30886-001B	BKT(B.RELEASE)
		101C	QYSLSP2030D	SCREW
		101D	QYSLSP2050D	SCREW,X2
		101E	QYSLSF2055D	SPECIAL SCREW,X2
		101G	LY30002-026A	COMPRES.SPRING
		101J	LY30891-001B	CAP(RCA JACK)
		101K	LY30888-001B	HOLDER(LITHIUM)
		101L	WJM0119-001A	E-SI C WIRE C-F
		101N	LY40081-001A	CAP
		102	LY20014-001A	GRIP BELT
		103	LY30018-003A	SPECIAL SCREW
	⚠	104	LY30887-001B	CAP(JIG)
		105	QYSLSP2030D	SCREW
	⚠	106	LY10124-038A	FRONT COVER ASSY,C,D,E
			LY10124-042A	FRONT COVER ASSY,A,B
		106A	LY30893-001C	HOOD
		106B	LY30894-006A	COVER(HOOD),C,D,E
			LY31556-001A	COVER(HOOD),A,B
		106C	LY20349-001C	GUIDE(SHUTTER)
		106D	LY30895-001B	SHUTTER(1)
		106E	LY30896-001A	SHUTTER(2)
		106F	YQ43762	SPECIAL SCREW,X2
		106G	LY41075-001A	SLIDER(SHUTTER)ASSY
		106H	QYSLSF2050Z	SCREW,X2
		106J	QYSLSF2060Z	SCREW,X3
		106K	LY20348-001A	DIAL(SHUTTER)
		106L	LY41081-001D	TORSION SPRING
		106M	LY41128-001B	HOLD(SHUTTER)
		106N	LY41381-001A	MARK
		106P	LY41077-001A	LEVER(1)
		106Q	LY41078-001A	LEVER(2)
		106R	LY30934-012A	COVER(LIGHT),A,B
	⚠	107	LY10189-001A	CASS.COVER ASSY
		107A	LY31291-001A	WINDOW
		107B	LY30898-001A	HINGE(C.COVER)
		107C	QYSLSF2050D	SCREW,X2
		108	LY31292-001A	BUTTON(PUSH)ASSY
		108A	LY30002-028D	COMPRES.SPRING
		109	LY31141-002A	UPPER CASE ASSY
		109A	LY30029-019A	SPACER(A)
		110	LY10129-070A	TOP COVER,E
			LY10129-079A	TOP COVER,A,B
			LY10129-080A	TOP COVER,C,D
		111	LY20328-001E	COVER(VF)
		112	LY30892-001B	CAP(REAR JACK)
		113	LY10120-031A	OPERATION UNIT
		114	LY10121-001D	ZOOM UNIT
		115	LY30861-010A	MICROPHONE
		116	LY30860-001B	DC LIGHT ASSY,C,D,E
		116A	YQ44266	LAMP,C,D,E
		117	QYSLSF2055D	SPECIAL SCREW
		118	QYSLSF2055D	SPECIAL SCREW,X3
		119	YQ43762-5	SPECIAL SCREW
		120	QYSLSF2055D	SPECIAL SCREW
		121	QYSLSF2055D	SPECIAL SCREW
		122	QYSLSF2055D	SPECIAL SCREW,X2
		123	QYSLSF2055D	SPECIAL SCREW,X2
		124	QYSLSF2090D	SCREW
		125	QYSLSF2055D	SPECIAL SCREW,X2
		126	QYSLSF2055D	SPECIAL SCREW
		127	QYSLSF2055D	SPECIAL SCREW,X2
		128	QYSLSF2090D	SCREW
		129	QYSLSF2055D	SPECIAL SCREW,X2
		130	QYSLSF2055D	SPECIAL SCREW,X2
		131	QYSLSF2055D	SPECIAL SCREW,X4
		132	QYSLSP2030D	SCREW
		133	QYSLSF2090D	SCREW
		134	QYSLSF2055D	SPECIAL SCREW
		135	QYSLSF2055D	SPECIAL SCREW
		136	QYSLSF2055D	SPECIAL SCREW
	⚠	137	LY20372-002B	FRAME ASSY,A,B
	⚠		LY20372-004A	FRAME ASSY,C,D,E
		137A	LY30903-001A	BASE
		137B	LY41090-001B	HOOK
		137C	QYSLSF2060D	SCREW,X2
		137D	QYSLSF2060Z	SCREW,X2
		137E	LY30016-0H2A	SPACER-A
		137F	YQ43810	CONTACT(LIGHT),X2 C,D,E
		137G	WJM0118-001A	E-SI C WIRE C-F,C,D,E
		137H	LY41082-001A	CUSHION(OP),X2
		138	YQ44457-3	SCREW,X2
		139	LY30904-001A	BKT(MECHA)
		140	QYSPSTU1725M	SCREW
		142	LY30018-050A	SPECIAL SCREW,X2
		143	LY41173-001A	SPECIAL SCREW,X2
		144	QYSLSF1750D	SCREW
		145	QYSLSF2055D	SPECIAL SCREW,X2
		146	LY41083-001B	KNOB(LIGHT),C,D,E
		147	WJT0024-001A	E-CARD WIRE, OP-MAIN CN15
		148	LY30889-001B	CAP(LITHIUM)
		149	LY31296-001A	BRACKET(C.COVER)
		150	LY30514-001F	FRONT FRAME ASSY
		150A	YQ44144-1-1	TAPE GUIDE
		151	SPSH1725M	SCREW,X2
		152	YQ31752J-30	CASSETTE HOUSING ASSY
		152A	LY31294-001A	CASS.COVER INSIDE
		153	YQ44457-3	SCREW,X4

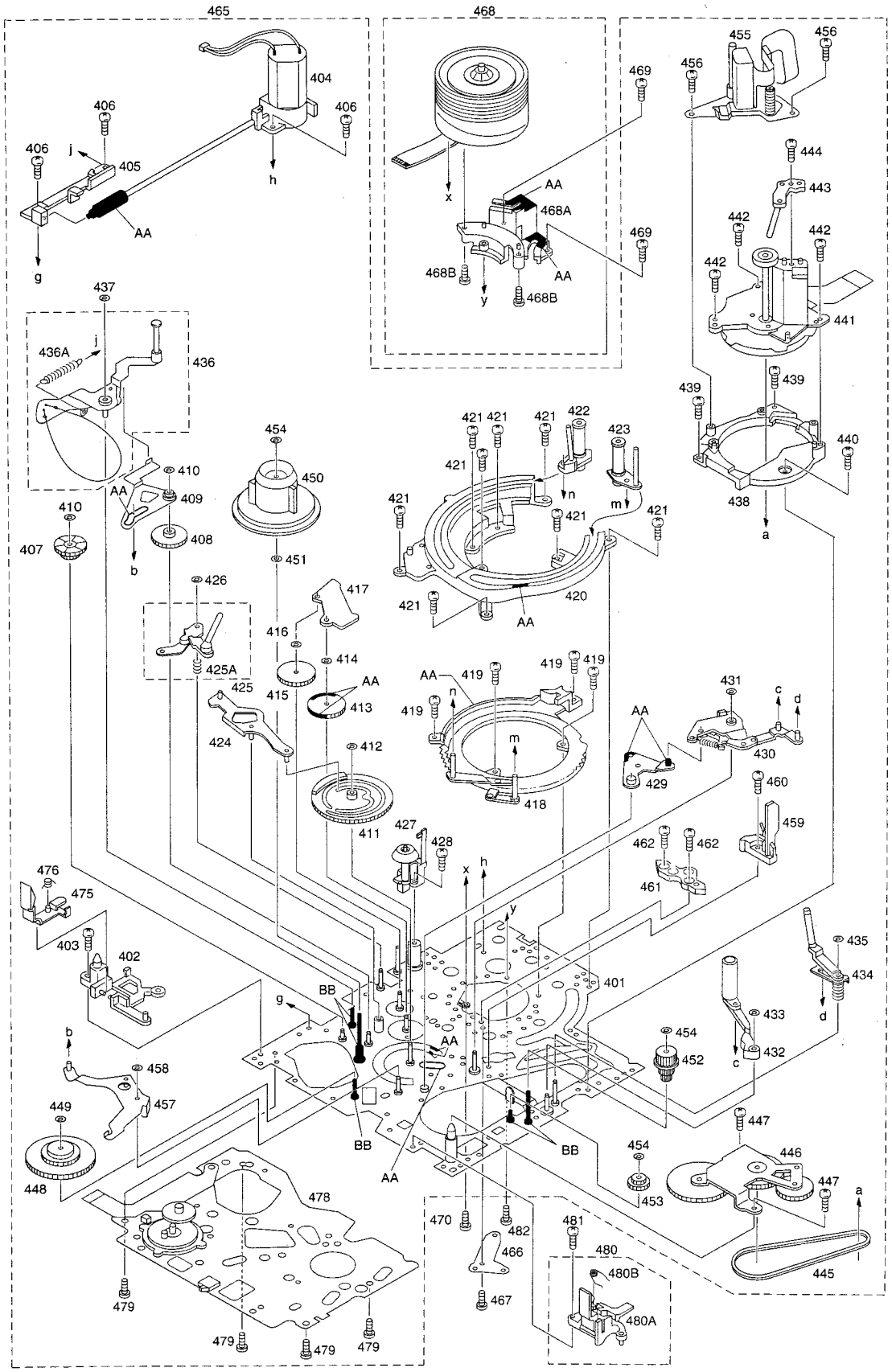
– OPTICAL BLOCK SECTION –

	251	LY30948-003A	OP BLOCK ASSY
	251A	PTY30948-002	FOCUS MOTOR
	251B	PTY30948-301	ZOOM MOTOR
	251C	PTY30151-016	SCREW,X9
	251D	PTY30948-006	IRIS MOTOR UNIT,INCL.FPC
	252	LYH40047-001A	CCD BASE ASSY
	253	QYSPSGU2080Z	SCREW,X2
	254	LY31441-001A	SPACER RUBBER
	255	LY41755-001A	OPTICAL LPF
	256	LY20346-001A	CCD SPACER
	257	LY30018-072A	SPECIAL SCREW

5.3 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



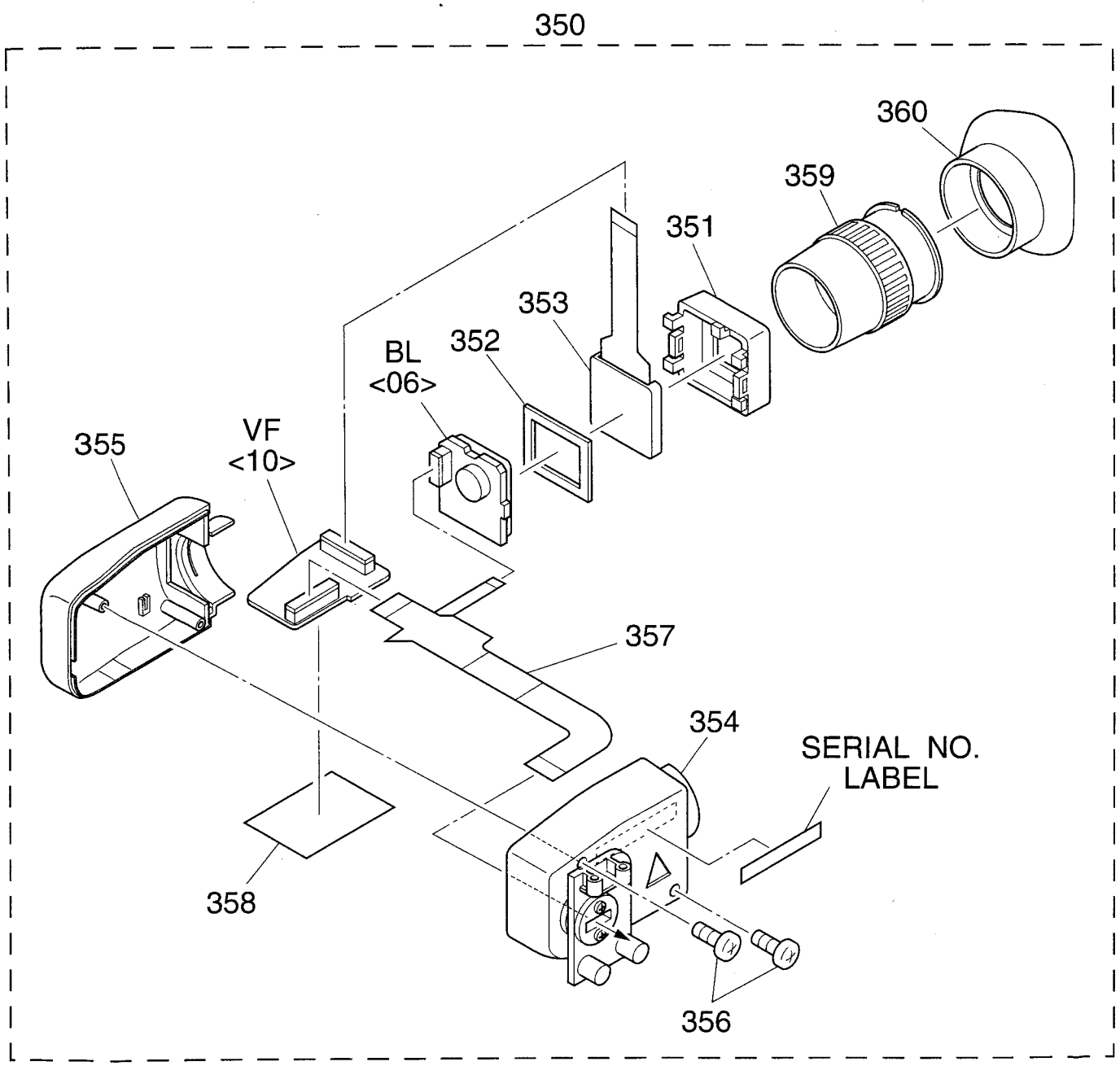
Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

MECHANISM ASSEMBLY <M3>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
401	LY20182-001D	MAIN DECK ASSY
402	YQ32218	C.GUIDE(L)
403	YQ44457	SCREW
404	YQ31856A-3	MOTOR BRACKET ASSY
405	YQ20793	WORM BRACKET
406	YQ44457	SCREW,X3
407	YQ31783	WHEEL GEAR
408	YQ44328	MIDDLE GEAR
409	YQ43849B	CANCEL LEVER ASSY
410	PQM30017-27	SLIT WASHER,X2
411	YQ20827-2-1	CONTROL CAM
412	PQM30017-25	SLIT WASHER
413	YQ43853A	LOADING GEAR(T)ASSY
414	PQM30017-27	SLIT WASHER
415	YQ43852A	LOADING GEAR(S)ASSY
416	PQM30017-27	SLIT WASHER
417	YQ43634	COVER PLATE
418	YQ43635C-12	LOADING RING ASSY
419	YQ44457	SCREW,X4
420	YQ10516-1-11	GUIDE RAIL
421	YQ44457-5	SCREW,X8
422	YQ43646A-4	SUPPLY POLE BASE ASSY
423	YQ43654A-11	TAKE-UP POLE BASE ASSY
424	YQ44439A-2	DRIVE LEVER ASSY
425	YQ43663C-7	SLANT ARM ASSY
425A	YQ43670	TOR.SPRING(S)
426	PQM30017-27	SLIT WASHER
427	YQ44436A-3	ROLLER BASE ASSY
428	YQ44457	SCREW
429	YQ32230	LINK LEVER
430	YQ43682B-9	LINK ARM ASSY
431	PQM30017-25	SLIT WASHER
432	LY40018-001A	PINCH ROLLER ARM ASSY
433	PQM30017-25	SLIT WASHER
434	YQ44591A	TAKE-UP GUIDE ARM ASSY
435	PQM30017-27	SLIT WASHER
436	YQ44199C-9	TENSION ARM ASSY
436A	LY41515-001A	TENSION SPRING
437	PQM30017-27	SLIT WASHER
438	YQ20797-1-5	MOTOR BASE
439	YQ44457	SCREW,X2
440	YQ44460	SCREW
441	YU42078-2	CAPSTAN MOTOR
442	YQ44304	TAPPING SCREW,X3
443	YQ43708A-3	SLANT POLE BASE ASSY
444	YQ44304	TAPPING SCREW
445	YQ43710	TIMING BELT
446	YQ43711B-10	CENTER PULLEY UNIT
447	YQ44457-2	SCREW,X2
448	YQ43729A-3	SUPPLY CLUCH ASSY
449	PQM30017-27	SLIT WASHER
450	YQ31861-1-7	REEL DISC
451	Q03093-835	WASHER
452	YQ31787	TAKE-UP GEAR
453	YQ43737	BRAKE SUB GEAR
454	PQM30017-27	SLIT WASHER,X3
455	YQ43738D-22	A/C HEAD UNIT
456	SPSN1750Z	SCREW,X2
457	YQ43743B	EJECT LEVER ASSY
458	PQM30017-27	SLIT WASHER
459	YQ31833-1-1	LED GUIDE
460	YQ44457	SCREW
461	YQ43818	DRUM SPACER
462	YQ44457	SCREW,X2
465	YMA0028A	MECHA(A)ASSY
466	YU42051	BRUSH
467	YQ44457-3	SCREW
468	YDV2090A	DRUM ASSY
468A	YDM1003-1-5	CATCHER
468B	QYSPSPU1735M	SCREW,X2
469	YQ44457	SCREW,X2
470	SPSH1740Z	SCREW
475	YQ32219	SW.LEVER(L)
476	YQ44422-1-1	TORSION SPRING
478	QSW0751-001	ROTARY ENCODER
479	YQ44457-2	SCREW,X4
480	YQ44339A-7	C.GUIDE(R)ASSY
480A	YQ32162-1-3	SW.LEVER(R)
480B	YQ44340-1-4	TORSION SPRING
481	YQ44457	SCREW
482	SPSH1740Z	SCREW

5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4>



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********				
			ELECTRONIC VIEWFINDER ASSEMBLY <M4>	
	⚠	350	LYH20125-001B	E.VF ASSY
		351	LY20524-001A	HOLDER(LCD)
		352	LY41907-001A	SPACER(LCD)
		353	QLD0117-001	LCD MODULE
	⚠	354	LY30914-001C	BOTTOM CASE ASSY
	⚠	355	LY30915-001C	TOP CASE ASSY
		356	QYSPSGT1760D	SCREW,X2
		357	QAL0136-004	FPC
		358	LY30029-018A	SPACER(A)
		359	PTY20307-200	LENS ASSY
		360	PTY20307-201	EYE CAP

5.5 ELECTRICAL PARTS LIST

MODEL	MARK	MODEL	MARK
GR-SX850U	A	GR-SX851UC	D
GR-SX850UC	B	GR-SX950U	E
GR-SX851U	C		

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

MAIN BOARD ASSEMBLY <01>

		PW	YB10271UA-03	MAIN BOARD ASSY,C,D,E
			YB10271UB-03	MAIN BOARD ASSY,A,B
		IC101	UPD703039-011	IC(MICRO C ROM)
			or UPD70F3040-011	IC(MICRO C ROM)
		IC102	S-81332HG-KC-X	IC
		IC104	AT25080N-10SC-X	IC
		IC105	M62367GP	IC
		IC106	IC-PST9327U-X	IC
		IC107	RS5C314	IC
		IC1201	BA8400FV	IC
	⚠	IC1601	BA6866KV	IC
		IC1801	PIC-26043S	IR DETECT UNIT
		IC2001	TC74AC04FT	IC(DIGITAL)
		IC3001	JCY0130	IC
		IC3002	74HC1G04GW	IC
		IC3004	TC74VHC74FT	IC
		IC3101	HA118219F	IC
		IC3501	M52385FP	IC
		IC3901	TC7WHU04FU	IC
		IC4001	JCY0100	IC
		IC4003	UPD6462GS-914-X	IC
		IC4004	MM1385NN	IC
		IC4005	TC7S04FU	IC
		IC4201	UPC358G2/5/-W	IC
		IC4202	BA10324AFV-XE	IC
		IC4251	BA10358F-XE	IC
		IC4501	UPD16835G3	IC
		IC5201	HD49326F	IC
		IC5202	JCY0098	IC
		IC6001	FA3676F	IC
		IC7802	TC7SET08FU	IC(DIGITAL)
		Q101	2SA1774/RS/-X	TRANSISTOR
		Q102	DTC144EE	TRANSISTOR
		Q103	2SC4617/QR/-X	TRANSISTOR
		Q104	DTC144EE	TRANSISTOR
		Q105	2SA1774/RS/-X	TRANSISTOR
		Q106	DTC144EE	TRANSISTOR
		Q107	DTA144EE	TRANSISTOR
		Q110	DTC144EE	TRANSISTOR
		Q2001	DTA114TE	TRANSISTOR
		Q2006	DTC144EE	TRANSISTOR
		Q2007	PUMX1	PAIR TRANSISTOR
		Q2008	PUMT1	PAIR TRANSISTOR
		Q2071	2SC4617/QR/-X	TRANSISTOR
		Q2072	PUMX1	PAIR TRANSISTOR
		Q3002	HN1C01FU/G/-X	PAIR TRANSISTOR
			or PUMX1	PAIR TRANSISTOR
		Q3003	2SA1577/QR/-X	TRANSISTOR
		Q3004	DTC144EE	TRANSISTOR
		Q3005	DTA144EE	TRANSISTOR
		Q3101	HN1C01FU/G/-X	PAIR TRANSISTOR
			or PUMX1	PAIR TRANSISTOR
		Q3102	HN1A01FU/G/-X	PAIR TRANSISTOR
			or PUMT1	PAIR TRANSISTOR
		Q3103	HN1C01FU/G/-X	PAIR TRANSISTOR
			or PUMX1	PAIR TRANSISTOR
		Q3104	HN1A01FU/G/-X	PAIR TRANSISTOR
			or PUMT1	PAIR TRANSISTOR
		Q3105	HN1C01FU/G/-X	PAIR TRANSISTOR
			or PUMX1	PAIR TRANSISTOR
		Q3106	HN1A01FU/G/-X	PAIR TRANSISTOR
			or PUMT1	PAIR TRANSISTOR
		Q3113	DTC144EE	TRANSISTOR
		Q3501	HN1C01FU/G/-X	PAIR TRANSISTOR
		Q3502	HN1C01FU/G/-X	PAIR TRANSISTOR
		Q3506	DTC144EE	TRANSISTOR
		Q3901	DTA114EE	TRANSISTOR
		Q3902	DTC144EE	TRANSISTOR
		Q3903	2SC4617/QR/-X	TRANSISTOR
		Q3904	DTC144EE	TRANSISTOR
		Q4001	PUMT1	PAIR TRANSISTOR
		Q4002	PUMT1	PAIR TRANSISTOR
		Q4004	2PA1774/R/-X	TRANSISTOR
		Q4201	2SC4617/QRS/-X	TRANSISTOR
			or 2SC4738/YG/-X	TRANSISTOR
		Q4251	RPM-22PB	PHOTO TRANSISTOR
		Q4501	DTC114EE	TRANSISTOR
		Q6111	NDS352AP	MOS FET
		Q6121	NDS352AP	MOS FET
		Q6123	2SB1121/ST/-X	TRANSISTOR
		Q6124	2SC4617/QR/-X	TRANSISTOR
			or 2SC4738/YG/-X	TRANSISTOR
		Q6131	NDS352AP	MOS FET
		Q6141	NDS352AP	MOS FET
		Q6151	NDS352AP	MOS FET
		Q6161	NDS352AP	MOS FET
		Q6162	HN1C01FU/G/-X	PAIR TRANSISTOR
		Q6163	2SA1577/QR/-X	TRANSISTOR
		Q6164	2SC4617/QR/-X	TRANSISTOR
			or 2SC4738/YG/-X	TRANSISTOR
		Q6165	HN1A01FU/G/-X	PAIR TRANSISTOR
		Q6166	2SC4617/QR/-X	TRANSISTOR
			or 2SC4738/YG/-X	TRANSISTOR
		Q6201	2SA1774/QR/-X	TRANSISTOR,C,D,E
			or 2SA1832/YG/-X	TRANSISTOR,C,D,E
		Q6202	2SD1628/FG/-X	TRANSISTOR,C,D,E
		Q6203	2SC4617/QR/-X	TRANSISTOR,C,D,E
			or 2SC4738/YG/-X	TRANSISTOR,C,D,E
	⚠	D101	SB007W03Q	SB DIODE
		D102	UDZS7.5B	ZENER DIODE
		D105	1SS355	DIODE
		D106	1SS355	DIODE
		D107	SB007W03Q	SB DIODE
		D501	MA8068	ZENER DIODE
		D502	MA8068	ZENER DIODE
		D3001	DAN222	DIODE
		D3101	MA8068	ZENER DIODE
		D3102	MA8068	ZENER DIODE
		D3103	MA8068	ZENER DIODE
		D5202	1SS355	DIODE
		D6111	CRS06	SB DIODE
		D6121	CRS06	SB DIODE
		D6131	CRS06	SB DIODE
		D6141	CRS06	SB DIODE
		D6151	CRS06	SB DIODE
		D6152	CRS06	SB DIODE
		D6161	1SS357	SB DIODE
		D6162	1SS357	SB DIODE

REF No.	PART No.	PART NAME, DESCRIPTION	
D6163	1SS357	SB DIODE	
D6164	1SS357	SB DIODE	
D6165	MA8091/L/-X	ZENER DIODE	
R101	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R104	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R105	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R106	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R107	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R108	NRVA63D-243X	CMF RESISTOR	24kΩ,1/16W
R109	NRVA63D-183X	CMF RESISTOR	18kΩ,1/16W
R110	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R111	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R112	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R113	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R114	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R115	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R116	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R118	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R119	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R120	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R121	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R122	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R123	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R124	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R125	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R126	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R127	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
R128	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R129	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R130	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R131	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R132	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R133	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R134	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R135	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R136	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R137	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R138	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R139	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R140	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
R141	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R142	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R143	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R144	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
R145	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R146	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R147	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R148	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R150	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R152	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R153	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R154	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R155	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R156	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R157	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R158	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R159	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R160	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R161	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R162	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R164	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R166	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R167	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R168	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R170	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R171	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R501	NRSA63J-105X	MG RESISTOR,C,D,E	1MΩ,1/16W
R504	NRSA63J-221X	MG RESISTOR	220Ω,1/16W
R505	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R1201	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R1202	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R1203	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1204	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R1601	NRV142F-R33X	CMF RESISTOR	0.33Ω,1/4W
R1602	NRV142F-R33X	CMF RESISTOR	0.33Ω,1/4W
R1603	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R1604	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1605	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1606	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1607	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1608	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R1609	NRSA63J-184X	MG RESISTOR	180kΩ,1/16W
R1610	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1612	NRVA63D-332X	CMF RESISTOR	3.3kΩ,1/16W
R1613	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R1614	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R1615	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1617	NRVA63D-392X	CMF RESISTOR	3.9kΩ,1/16W
R1618	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R1619	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R1620	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R1621	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1622	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R1623	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R1628	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R1629	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R1630	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R1631	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1632	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R1633	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R2001	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2002	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R2003	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2004	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R2005	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R2006	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2011	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R2012	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R2016	NRVA63D-133X	CMF RESISTOR	13kΩ,1/16W
R2021	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2022	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R2023	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
R2024	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R2025	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2026	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2027	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2029	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2071	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R2072	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R2073	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R2074	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R2075	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R2076	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R3001	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R3002	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3004	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R3006	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R3007	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R3008	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R3009	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R3010	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3014	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3015	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3016	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3018	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R3023	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3024	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R3026	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R3027	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3028	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R3029	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3030	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3032	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3034	NRSA63J-220X	MG RESISTOR	22Ω,1/16W
R3101	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3102	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3103	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3109	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3110	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3111	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R3112	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3113	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3114	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R3115	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3116	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3117	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R3131	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R3134	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3135	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3501	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3503	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3504	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3506	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3508	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3509	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3515	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R3519	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3536	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3537	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3901	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3902	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4001	NRSA63J-113X	MG RESISTOR	11kΩ,1/16W
R4002	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R4003	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4004	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4006	NRVA63D-272X	CMF RESISTOR	2.7kΩ,1/16W
R4007	NRVA63D-272X	CMF RESISTOR	2.7kΩ,1/16W
R4008	NRVA63D-272X	CMF RESISTOR	2.7kΩ,1/16W
R4009	NRVA63D-152X	CMF RESISTOR	1.5kΩ,1/16W
R4010	NRVA63D-122X	CMF RESISTOR	1.2kΩ,1/16W
R4011	NRVA63D-152X	CMF RESISTOR	1.5kΩ,1/16W
R4012	NRVA63D-122X	CMF RESISTOR	1.2kΩ,1/16W
R4013	NRVA63D-152X	CMF RESISTOR	1.5kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R4014	NRVA63D-122X	CMF RESISTOR	1.2kΩ,1/16W
R4015	NRVA63D-181X	CMF RESISTOR	180Ω,1/16W
R4016	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4017	NRVA63D-151X	CMF RESISTOR	150Ω,1/16W
R4018	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4019	NRVA63D-620X	CMF RESISTOR	62Ω,1/16W
R4020	NRVA63D-101X	CMF RESISTOR	100Ω,1/16W
R4021	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4022	NRVA63D-750X	CMF RESISTOR	75Ω,1/16W
R4023	NRVA63D-750X	CMF RESISTOR	75Ω,1/16W
R4024	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4025	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
R4027	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4037	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4201	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4202	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R4203	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4204	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R4205	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4206	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4207	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4208	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4209	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4210	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4211	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R4214	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4215	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R4216	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4217	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4218	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4219	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4220	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4221	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R4222	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R4223	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4224	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4251	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R4252	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4253	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4254	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R4255	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4256	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R4257	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R4258	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4259	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R4262	NRSA63J-302X	MG RESISTOR	3kΩ,1/16W
⚠ R4501	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4502	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4503	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4504	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
R4505	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R4506	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4507	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4514	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4515	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R4518	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5201	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R5202	NRSA63J-220X	MG RESISTOR	22Ω,1/16W
R5211	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R5212	NRSA63J-101X	MG RESISTOR	100Ω,1/16W

REF No.	PART No.	PART NAME, DESCRIPTION	
R5213	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5214	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5215	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5216	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R5218	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5220	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6001	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6002	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R6009	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R6010	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R6011	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R6012	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R6111	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R6112	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R6113	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6121	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R6122	NRVA63D-183X	CMF RESISTOR	18kΩ,1/16W
R6123	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R6125	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6126	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R6127	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6131	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6133	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6134	NRVA63D-302X	CMF RESISTOR	3kΩ,1/16W
R6135	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R6136	NRSA63J-113X	MG RESISTOR	11kΩ,1/16W
R6137	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6141	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R6142	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R6143	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R6144	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6145	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R6146	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R6151	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R6152	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6153	NRVA63D-103X	CMF RESISTOR	10kΩ,1/16W
R6161	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R6162	NRVA63D-683X	CMF RESISTOR	68kΩ,1/16W
R6163	NRVA63D-392X	CMF RESISTOR	3.9kΩ,1/16W
R6164	NRSA63J-394X	MG RESISTOR	390kΩ,1/16W
R6165	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6166	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R6167	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R6168	NRVA63D-513X	CMF RESISTOR	51kΩ,1/16W
R6169	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R6170	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R6171	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R6172	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R6173	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R6174	NRVA63D-683X	CMF RESISTOR	68kΩ,1/16W
R6175	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R6176	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R6177	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6179	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R6182	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6201	NRSA63J-103X	MG RESISTOR,C,D,E	10kΩ,1/16W
R6202	NRSA63J-100X	MG RESISTOR,C,D,E	10Ω,1/16W
R6203	NRSA63J-103X	MG RESISTOR,C,D,E	10kΩ,1/16W
R6205	NRSA63J-184X	MG RESISTOR,C,D,E	180kΩ,1/16W
R6206	NRSA63J-102X	MG RESISTOR,C,D,E	1kΩ,1/16W
R6914	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R6931	NRSA63J-4R7X	MG RESISTOR	4.7Ω,1/16W
R7802	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7804	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7810	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
RA101	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA102	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA103	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA104	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA105	NRZ0038-473X	NETWORK RESISTOR	47kΩ
RA106	NRZ0037-331X	NETWORK RESISTOR	330Ω
RA107	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA108	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
RA109	NRZ0038-222X	NETWORK RESISTOR	2.2kΩ
C101	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C102	NEA71CM-226X	E CAPACITOR	22μF,16V
C103	NBE41AM-106X	T CAPACITOR	10μF,10V
C104	NCB31EK-103X	CAPACITOR	0.01μF,25V
C105	NCB31CK-104X	CAPACITOR	0.1μF,16V
C106	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C107	NCB31EK-103X	CAPACITOR	0.01μF,25V
C108	NBE21AM-225X	T CAPACITOR	2.2μF,10V
C109	NBE41AM-106X	T CAPACITOR	10μF,10V
C110	NDC31HJ-101X	CAPACITOR	100pF,50V
C111	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C112	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C113	NCB31EK-103X	CAPACITOR	0.01μF,25V
C114	NCB31EK-103X	CAPACITOR	0.01μF,25V
C116	NCB31EK-103X	CAPACITOR	0.01μF,25V
C118	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C119	NCB31EK-103X	CAPACITOR	0.01μF,25V
C120	NCB31EK-103X	CAPACITOR	0.01μF,25V
C121	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C122	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C123	NDC31HJ-100X	CAPACITOR	10pF,50V
C124	NDC31HJ-100X	CAPACITOR	10pF,50V
C125	NCB31EK-103X	CAPACITOR	0.01μF,25V
C126	NDC31HJ-120X	CAPACITOR	12pF,50V
C127	NCB31CK-333X	CAPACITOR	0.033μF,16V
C128	NCB21CK-474X	CAPACITOR	0.47μF,16V
C129	NCB31CK-333X	CAPACITOR	0.033μF,16V
C131	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C132	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C133	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C134	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C1201	NBE21AM-106X	T CAPACITOR	10μF,10V
C1202	NBE21AM-106X	T CAPACITOR	10μF,10V
C1203	NCB31EK-223X	CAPACITOR	0.022μF,25V
C1204	NCB31HK-102X	CAPACITOR	0.001μF,50V
C1205	NBE21AM-106X	T CAPACITOR	10μF,10V
C1206	NBE21AM-106X	T CAPACITOR	10μF,10V
C1207	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1601	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1602	NBP41CM-106X	T CAPACITOR	10μF,16V
C1603	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1604	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1605	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1606	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1607	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1608	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1609	NCB31HK-222X	CAPACITOR	0.0022μF,50V
C1610	NCB21CK-334X	CAPACITOR	0.33μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1611	NBE41AM-226X	T CAPACITOR	22μF,10V
C1612	NCB31HK-681X	CAPACITOR	680pF,50V
C1613	NCB21CK-474X	CAPACITOR	0.47μF,16V
C1614	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C1615	NBE21AM-106X	T CAPACITOR	10μF,10V
C1616	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C1617	NBP41CM-106X	T CAPACITOR	10μF,16V
C1624	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1625	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1626	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1631	NCB31CK-683X	CAPACITOR	0.068μF,16V
C2001	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C2002	NFV41HJ-183X	MPPS CAPACITOR	0.018μF,50V
C2003	NDC31HJ-331X	CAPACITOR	330pF,50V
C2004	NBE20JM-226X	T CAPACITOR	22μF,6.3V
C2005	NCB21CK-105X	CAPACITOR	1μF,16V
C2009	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C2010	NCB31CK-104X	CAPACITOR	0.1μF,16V
C2021	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C2022	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C2024	NCB31HK-222X	CAPACITOR	0.0022μF,50V
C2025	NBP21EM-105X	T CAPACITOR	1μF,25V
C2026	NCB31HK-122X	CAPACITOR	0.0012μF,50V
C2027	NCB21CK-474X	CAPACITOR	0.47μF,16V
C2028	NCF21CZ-105X	CAPACITOR	1μF,16V
C2029	NCB21AK-105X	CAPACITOR	1μF,10V
C2030	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C2031	NCB21CK-104X	CAPACITOR	0.1μF,16V
C2051	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C2071	NCB21AK-105X	CAPACITOR	1μF,10V
C2072	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C2073	NDC31HJ-331X	CAPACITOR	330pF,50V
C2074	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C2076	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3002	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3003	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3004	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3005	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3006	NDC31HG-120X	CAPACITOR	12pF,50V
C3007	NDC31HG-100X	CAPACITOR	10pF,50V
C3009	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3011	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3012	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3013	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3014	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3015	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3016	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3017	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3019	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3020	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3022	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3027	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3028	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3032	NDC31HJ-100X	CAPACITOR	10pF,50V
C3033	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3037	NDC31HJ-100X	CAPACITOR	10pF,50V
C3101	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3103	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3104	NDC31HJ-560X	CAPACITOR	56pF,50V
C3105	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3106	NCB31CK-104X	CAPACITOR	0.1μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3107	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3108	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3109	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3112	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C3113	NCB21AK-105X	CAPACITOR	1μF,10V
C3114	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3118	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3119	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3120	NEA70GM-337X	E CAPACITOR	330μF,4.0V
C3121	NEA70GM-337X	E CAPACITOR	330μF,4.0V
C3134	NDC31HJ-220X	CAPACITOR	22pF,50V
C3501	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3502	NCF21CZ-105X	CAPACITOR	1μF,16V
C3503	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3504	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3505	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3506	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3507	NCF21CZ-105X	CAPACITOR	1μF,16V
C3508	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3509	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3510	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3511	NDC31HJ-150X	CAPACITOR	15pF,50V
C3513	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3514	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3515	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3517	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3518	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3520	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3522	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3523	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3524	NDC31HJ-150X	CAPACITOR	15pF,50V
C3525	NCB31CK-473X	CAPACITOR	0.047μF,16V
C3901	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4006	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4008	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4009	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4010	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4012	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4014	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4017	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4019	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4022	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4024	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4028	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4029	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4030	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4034	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4036	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4037	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4038	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4039	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4044	NBE20GM-336X	T CAPACITOR	33μF,4.0V
C4045	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4046	NCF21CZ-105X	CAPACITOR	1μF,16V
C4047	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4048	NBE20GM-336X	T CAPACITOR	33μF,4.0V
C4049	NDC31HJ-100X	CAPACITOR	10pF,50V
C4051	NDC31HJ-101X	CAPACITOR	100pF,50V
C4201	NEA71HM-225X	E CAPACITOR	2.2μF,50V
C4202	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4203	NCB31CK-104X	CAPACITOR	0.1μF,16V

REF No.	PART No.	PART NAME, DESCRIPTION	
C4205	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4206	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4207	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4208	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4209	NCF21CZ-105X	CAPACITOR	1μF,16V
C4210	NCF21CZ-105X	CAPACITOR	1μF,16V
C4251	NEA71HM-335X	E CAPACITOR	3.3μF,50V
C4252	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4253	NCB31EK-153X	CAPACITOR	0.015μF,25V
C4254	NCB31EK-153X	CAPACITOR	0.015μF,25V
C4256	NEA71CM-106X	E CAPACITOR	10μF,16V
C4502	NEA71CM-106X	E CAPACITOR	10μF,16V
C4503	NEA70JM-107X	E CAPACITOR	100μF,6.3V
C4504	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4505	NDC31HJ-330X	CAPACITOR	33pF,50V
C4506	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4507	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4508	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4509	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4510	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4511	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C5203	NBE40GM-336X	T CAPACITOR	33μF,4.0V
C5204	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5207	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5208	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5209	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5210	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5211	NCB21CK-105X	CAPACITOR	1μF,16V
C5212	NCB21CK-105X	CAPACITOR	1μF,16V
C5213	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C5214	NCB21CK-105X	CAPACITOR	1μF,16V
C5216	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5218	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5219	NBP21CM-685X	T CAPACITOR	6.8μF,16V
C5220	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5221	NBP41VM-105X	T CAPACITOR	1μF,35V
C5222	NCB31HK-102X	CAPACITOR	0.001μF,50V
C5223	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5224	NBE40GM-336X	T CAPACITOR	33μF,4.0V
C5225	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5227	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5228	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C5229	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
C5230	NCB21EK-104X	CAPACITOR	0.1μF,25V
C5232	NDC31HJ-100X	CAPACITOR	10pF,50V
C5233	NDC31HJ-100X	CAPACITOR	10pF,50V
C5234	NDC31HJ-100X	CAPACITOR	10pF,50V
C5235	NDC31HJ-100X	CAPACITOR	10pF,50V
C5236	NDC31HJ-100X	CAPACITOR	10pF,50V
C5237	NDC31HJ-100X	CAPACITOR	10pF,50V
C6001	NCB21CK-105X	CAPACITOR	1μF,16V
C6003	NEA71CM-106X	E CAPACITOR	10μF,16V
C6004	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6005	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6006	NCB31CK-473X	CAPACITOR	0.047μF,16V
C6007	NCF21CZ-105X	CAPACITOR	1μF,16V
C6008	NCB21CK-105X	CAPACITOR	1μF,16V
C6009	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6010	NCF21CZ-105X	CAPACITOR	1μF,16V
C6011	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6012	NCB31HK-272X	CAPACITOR	0.0027μF,50V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C6013	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6014	NCB31HK-561X	CAPACITOR	560pF,50V
C6015	NCB31HK-561X	CAPACITOR	560pF,50V
C6016	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6017	NDC31HJ-101X	CAPACITOR	100pF,50V
C6018	NCB21CK-105X	CAPACITOR	1μF,16V
C6019	NCF21CZ-105X	CAPACITOR	1μF,16V
C6111	NCB21CK-105X	CAPACITOR	1μF,16V
C6113	NCB10JK-106X	CAPACITOR	10μF,6.3V
C6114	NCB31HK-102X	CAPACITOR	0.001μF,50V
C6121	NCB21CK-105X	CAPACITOR	1μF,16V
C6123	NCB10JK-106X	CAPACITOR	10μF,6.3V
C6124	NCB31HK-102X	CAPACITOR	0.001μF,50V
C6125	NEA71CM-106X	E CAPACITOR	10μF,16V
C6131	NCB21CK-105X	CAPACITOR	1μF,16V
C6132	NCB21CK-105X	CAPACITOR	1μF,16V
C6133	NCB21EK-683X	CAPACITOR	0.068μF,25V
C6141	NCB21CK-105X	CAPACITOR	1μF,16V
C6142	NCB21CK-105X	CAPACITOR	1μF,16V
C6143	NCB21CK-224X	CAPACITOR	0.22μF,16V
C6151	NCB21CK-105X	CAPACITOR	1μF,16V
C6153	NCB10JK-106X	CAPACITOR	10μF,6.3V
C6154	NCB31HK-472X	CAPACITOR	0.0047μF,50V
C6155	NCB21CK-105X	CAPACITOR	1μF,16V
C6161	NCB21CK-105X	CAPACITOR	1μF,16V
C6162	NCB11EK-105X	CAPACITOR	1μF,25V
C6163	NCB31HK-102X	CAPACITOR	0.001μF,50V
C6164	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6165	NCB21CK-105X	CAPACITOR	1μF,16V
C6167	NCB21CK-105X	CAPACITOR	1μF,16V
C6168	NCB11EK-105X	CAPACITOR	1μF,25V
C6169	NCB21CK-105X	CAPACITOR	1μF,16V
C6173	NCB21CK-105X	CAPACITOR	1μF,16V
C6174	NCB21CK-105X	CAPACITOR	1μF,16V
C6175	NCB21CK-105X	CAPACITOR	1μF,16V
C6201	NEA71CM-106X	E CAPACITOR,C,D,E	10μF,16V
C7801	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7809	NBE41AM-106X	T CAPACITOR	10μF,10V
L101	NQL034K-330X	COIL	33μH
L102	NQR0199-004X	FERRITE BEAD	
L103	NQR0199-004X	FERRITE BEAD	
L501	NQR0129-002X	FERRITE BEAD	
L2001	NQL144K-101X	COIL	100μH
L2002	NQL144K-101X	COIL	100μH
L2003	NQL144K-470X	COIL	47μH
L2051	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
L2052	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
L3002	NQL315K-220X	COIL	22μH
L3003	NQL315K-220X	COIL	22μH
L3101	NQL315K-220X	COIL	22μH
L3106	NQL085J-100X	COIL	10μH
L3501	NQL315K-220X	COIL	22μH
L3502	NQL315K-220X	COIL	22μH
L3901	NQL085J-1R5X	COIL	1.5μH
L4001	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
L4002	NRS181J-0R0X	MG RESISTOR	0Ω,1/8W
L4003	NQL314K-220X	COIL	22μH
L4201	NQL315K-220X	COIL	22μH
L4501	NQL315K-100X	COIL	10μH
L4502	NQL034K-220X	COIL	22μH
L4503	NQL315K-220X	COIL	22μH

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		L5201	NQL314K-220X	COIL	22µH
		L5202	NQL314K-101X	COIL	100µH
		L5203	NQL314K-101X	COIL	100µH
		L5204	NQL314K-220X	COIL	22µH
		L6001	NQLZ011-4R7X	COIL	4.7µH
		L6002	NQLZ011-4R7X	COIL	4.7µH
		L6111	NQLZ011-390X	COIL	39µH
		L6121	NQLZ011-390X	COIL	39µH
		L6131	NQLZ011-470X	COIL	47µH
		L6141	NQLZ011-470X	COIL	47µH
		L6151	NQLZ011-470X	COIL	47µH
		L6161	NQLZ011-221X	COIL	220µH
		L7801	NQL144K-100X	COIL	10µH
		X101	NAX0251-001X	CRYSTAL RESONATOR	
		X102	NAX0325-001X	CRYSTAL RESONATOR	
		X3001	QAX0565-001	CRYSTAL RESONATOR	
		SW503	NSW0092-001X	SLIDE SWITCH,C,D,E	
		WR1	WJV0019-001B	E-PRIMARY WIRE	
		J502	YQ32092-3	BATTERY TERMINAL UNIT	
		J503	PEMC1203	MINI JACK	
		J504	LY31356-002A	JACK UNIT	
		J505	QND0068-001	S JACK,A,B	
			QND0078-001	S JACK,C,D,E	
		CN1	QGF0507F1-10X	FPC CONNECTOR	
		CN2	QGF0510F2-14X	FPC CONNECTOR	
		CN3	QGF0507F1-18X	FPC CONNECTOR	
		CN4	QGA1201F2-02X	CONNECTOR	
		CN5	QGF0507F1-11X	FPC CONNECTOR	
		CN7	QGF0507F2-11X	FPC CONNECTOR	
		CN8	QGA1201C2-02X	CONNECTOR	
		CN11	QGF0507F1-20X	FPC CONNECTOR	
		CN13	QGF0507F1-10X	FPC CONNECTOR	
		CN14	QGA1201C2-02X	CONNECTOR,C,D,E	
		CN15	QGF0512C1-22X	FPC CONNECTOR	
		CN18	QGF0510F2-14X	FPC CONNECTOR	
		CN22	QGF0505F2-14X	FPC CONNECTOR	
		CN25	QGB0801M1-20X	CONNECTOR	
		CN26	QGA1201C2-02X	CONNECTOR	
	⚠	F6001	NMFZ006-2R0X-K	FUSE	T2.0A
	⚠	F6004	NMFZ006-R20X-K	FUSE	T0.2A
		SD1	LY41185-001B	SHIELD CASE(L)	
		SD2	LY41713-001A	SHIELD PLATE	
		SD3	LY41473-001A	SHIELD PLATE	

****

CCD BOARD ASSEMBLY <02>

PW	YB20846L-01	CCD BOARD ASSY	
Q5301	2SC3931/CD/-X	TRANSISTOR	
R5302	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R5303	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
C5301	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C5302	NBP21EM-155X	T CAPACITOR	1.5µF,25V
C5304	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C5305	NDC21HJ-270X	CAPACITOR	27pF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

****

BL BOARD ASSEMBLY <06>

PW2	YB20867A2	BL BOARD ASSY	
Q7301	2SK2742	POWER MOS FET	
R7301	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
C7301	NBP71CM-336X	T CAPACITOR	33µF,16V
C7302	NCF31CZ-104X	CAPACITOR	0.1µF,16V
L7301	NQL144K-100X	COIL	10µH
BL7301	NLL0010-001	LAMP	
⚠ T7301	NQH0006-001X	FB TRANSF	
CN7301	QGF0512C1-06X	FPC CONNECTOR	

****

VF BOARD ASSEMBLY <10>

PW1	YB20867A1	VF BOARD ASSY	
IC7400	CXA3503R-A	IC	
Q7402	2SC4617/QR/-X	TRANSISTOR	
D7400	MA365	VARI CAP DIODE	
R7400	NRSA63J-271X	MG RESISTOR	270Ω,1/16W
R7401	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R7402	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R7403	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7404	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7405	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7406	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R7409	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R7410	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R7411	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R7415	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7416	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7420	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R7421	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7422	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R7423	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7433	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7434	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7435	NRSA63J-103X	MG RESISTOR,H.POS	10kΩ,1/16W
R7436	NVP0018-473X	TRIM RESISTOR	
R7439	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7440	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7441	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R7442	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
C7400	NCB21AK-105X	CAPACITOR	1µF,10V
C7403	NCB31CK-104X	CAPACITOR	0.1µF,16V
C7404	NCB31CK-104X	CAPACITOR	0.1µF,16V
C7405	NCB31HK-103X	CAPACITOR	0.01µF,50V
C7406	NCB21CK-104X	CAPACITOR	0.1µF,16V
C7407	NCB21CK-104X	CAPACITOR	0.1µF,16V
C7408	NCB21CK-104X	CAPACITOR	0.1µF,16V
C7409	NCB21CK-105X	CAPACITOR	1µF,16V
C7411	NCB31CK-104X	CAPACITOR	0.1µF,16V
C7413	NBP41DM-106X	T CAPACITOR	10µF,20V
C7414	NCB31HK-103X	CAPACITOR	0.01µF,50V

REF No.	PART No.	PART NAME, DESCRIPTION	
C7415	NBE40JM-226X	T CAPACITOR	22µF,6.3V
C7416	NCB31CK-104X	CAPACITOR	0.1µF,16V
C7417	NCB21AK-105X	CAPACITOR	1µF,10V
C7418	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7419	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7420	NCB31EK-103X	CAPACITOR	0.01µF,25V
C7421	NDC31HJ-300X	CAPACITOR	30pF,50V
C7422	NDC31HJ-221X	CAPACITOR	220pF,50V
C7423	NCB31HK-103X	CAPACITOR	0.01µF,50V
C7424	NCB31HK-682X	CAPACITOR	0.0068µF,50V
C7425	NBP21CM-335X	T CAPACITOR	3.3µF,16V
C7427	NBP41DM-106X	T CAPACITOR	10µF,20V
C7430	NCB31HK-103X	CAPACITOR	0.01µF,50V
C7431	NBE20JM-106X	T CAPACITOR	10µF,6.3V
L7400	NQL144K-100X	COIL	10µH
L7401	NQL085J-100X	COIL	10µH
L7402	NQL144K-100X	COIL	10µH
L7403	NQL144K-100X	COIL	10µH
CN7201	QGF0503C1-18X	FFC/FPC CONNECTOR	
CN7202	QGF0503C1-16X	FFC/FPC CONNECTOR	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION